

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/2/2021 4:08:34 PM
To: Turville Rick [Rick.Turville@kalmancoinc.com]; Mark Thomas [mark@spectralsystemsglobal.com]; robert.kroutil@kalmancoinc.com; Dess Brian [brian.dess@kalmancoinc.com]; Jeff Stapleton [jeff.stapleton@kalmancoinc.com]
CC: Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Argenta, Edward [Argenta.Edward@epa.gov]; Hudson, Scott [Hudson.Scott@epa.gov]
Subject: FW: EPA ASPECT Opening Up Lines of Communication
Attachments: Hurricane IDA ISR Collection Summary 02SEP21.xlsx

Could one of you (maybe Brian?) do a comparison of the lists that were sent to us by the CG and the LDEQ, and make note of any overlap?

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:55 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Understood. The list we submitted earlier is still current and represents our current priorities.

Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)

Priority 5 are fulfilled requirements and no additional collect is requested.

We have the following targets located in or immediately outside St Charles Parrish:

REQ NUM	Priority	Structure Name	Facility Status	DMS LAT	DMS LON	DD LAT	DD LON
0066	3	PORT_NEW_ORLEANS	Unknown	29° 54' 51.00" N	090° 06' 48.00" W	#####	#####
0058	3	CARGILL_GRAINS_WESTWEGO	Unknown	29° 56' 18.60" N	090° 08' 43.20" W	#####	#####
0081	2	ORLEANS_MARINA	Flooding	30° 01' 18.60" N	090° 07' 00.00" W	#####	#####

Complete list of cur
 VR
 LT Kevin Herr
 RFI/CRM/COM/ISR Manager

Area Command

O: 314-269-2642

C: 813-217-3418

rent requirements attached.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 11:45 AM

To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

LT Herr,

EPA ASPECT has received authorization to collect data for the Hurricane Ida response. The Team is re-tooling for this mission and should be in the air heading towards St. Charles Parish in about an hour. EPA Region 6 has given ASPECT a list of priority sites and will target them first. We would like to start coordination efforts such that ASPECT can assist with priority target assessment, chemical/oil release investigations and to reduce replication of effort.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Sent: Thursday, September 2, 2021 10:44 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY

Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)
Facility Name: S2 Energy West Little Lake
Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W
Requesting Agency: Sector NOLA
POC: John Smith
Phone Number: XXX-XXX-XXXX
Email: john.smith@uscg.mil
Last Time Information of Value: DDMMYY
Specific Collection Request: What to you need to know?
Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)
Notes: Provide any amplifying information

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 10:23 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
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F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:12 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:45 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
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Boston, MA 02109-3912
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C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>
Sent: Thursday, September 2, 2021 9:26 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA)

<Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

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Sent: Thursday, September 2, 2021 9:12 AM

To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>

Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456

C: 617 947-4414
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REQ NUM	Priority	Structure Name
0164	1	PORT_FOURCHON
0141	1	BAYOU_DULARGE_FLOODGATE
0072	1	S2_ENERGY_STRIKE_KING
0068	1	RIDGELAKE_ENERGY_INC_THREE_BAYOU_BAY_FACILITY
0014	2	A-Brutus TLP
0165	2	PORT_FOURCHON_MARINA
0052	2	RFF_PORT_FOURCHON
0082	2	VENICE_MARINA
0076	2	STA_VENICE
0077	2	CYPRESS_COVE
0074	2	STA_GRAND_ISLE
0143	2	BAYOU_PETIT_CALLIOU_FLOODGATE
0147	2	BUBBA_DOVE_FLOODGATE
0162	2	PLACID_CANAL_FLOODGATE
0142	2	BAYOU_GRAND_CALLIOU_FLOODGATE
0154	2	GOLDEN_MEADOW_OSV_STORAGE_SUPERIOR_SHIPYARD
0079	2	JOSHUAS_MARINA
0148	2	BUSH_CANAL_FLOODGATE
0152	2	DULAC_SHRIMP_FLEET
0145	2	BOUDREAUX_CANAL_SECTOR_GATE
0144	2	BAYOU_TERREBONNE_FLOODGATE
0163	2	POINT_AUX_CHENES_FLOODGATE
0156	2	HUMBLE_CANAL_FLOOD_BARGE
0073	2	S2_ENERGY_WEST_LITTLE_LAKE
0158	2	LAROSE_OSV_STORAGE
0167	2	PROSPECT_BRIDGE
0064	2	INTERNATIONAL_MARINE_TERM_57
0059	2	CENEX_HARVEST_STATES_MYRTLE_GROVE_61.5
0053	2	RFF_REGGIO
0081	2	ORLEANS_MARINA
0188	2	AMA_ANCHORAGE_LMR
0192	2	KENNER_BEND_ANCHORAGES
0197	2	TOMS_MARINE_SALVAGE
0212	2	LEON_THERIOT_FLOODGATE
0213	2	LOWER_BAYOU_DULARGE_FLOOD_BARGE
0065	3	LOOP
0149	3	COCODRIE_LA
0069	3	S2_ENERGY_COQUILLE_BAY
0067	3	POYDRAS_ENERGY_MAIN_PASS_32
0062	3	FORZA_OPERATING_LLC_STATE_LEASE_1794 WELL_1
0070	3	S2_ENERGY_NORTH_HALF_TANK_BATTERY
0071	3	S2_ENERGY_OPERATING_MAIN_PASS_21
0146	3	BOURG_OSV_STORAGE
0166	3	PORT_HOUMA_TERREBONNE

Facility Status	DMS LAT	DMS LON	DDM LAT	DDM LON
Damaged	29° 07' 13.32" N	090° 12' 03.96" W		
Damaged	29° 20' 09.60" N	090° 50' 35.40" W		
Extensive damage observed	29° 31' 03.84" N	090° 08' 30.00" W		
Observed possible gas leak from toppled platform outside facility	29° 32' 12.90" N	090° 03' 03.18" W		
Unknown Sheen	27° 47' 42.85"N	090° 38' 51.14"W		
Damaged	29° 09' 11.40" N	090° 10' 57.60" W		
Damaged	29° 10' 08.40" N	090° 09' 04.80" W		
Damaged	29° 14' 22.86" N	089° 21' 46.98" W		
Flooding	29° 15' 07.80" N	089° 21' 28.80" W		
Damaged	29° 15' 12.00" N	089° 21' 31.80" W		
Damage observed, operational status unk due to image quality	29° 15' 51.00" N	089° 57' 17.40" W		
Unknown	29° 17' 47.40" N	090° 38' 54.60" W		
Unknown	29° 19' 46.80" N	090° 43' 46.80" W		
Unknown	29° 20' 29.40" N	090° 37' 55.80" W		
Unknown	29° 20' 33.18" N	090° 44' 15.60" W		
Damaged/Flooding	29° 20' 55.32" N	090° 14' 51.84" W		
Damaged	29° 20' 57.00" N	089° 32' 16.80" W		
Unknown	29° 22' 07.32" N	090° 36' 07.86" W		
Damaged	29° 22' 21.90" N	090° 42' 47.88" W		
Unknown	29° 23' 12.00" N	090° 37' 03.60" W		
Unknown	29° 23' 17.40" N	090° 35' 17.40" W		
Unknown	29° 25' 06.00" N	090° 26' 53.40" W		
Damage observed, barge detached	29° 26' 15.06" N	090° 33' 52.50" W		
Absent Structure, Flooding	29° 32' 48.96" N	090° 09' 20.16" W		
Flooding	29° 32' 55.80" N	090° 23' 49.44" W		
Unknown	29° 36' 04.26" N	090° 40' 20.22" W		
Damaged	29° 37' 26.40" N	089° 55' 04.80" W		
Damaged	29° 40' 22.80" N	089° 57' 50.40" W		
Damaged	29° 48' 31.20" N	089° 45' 42.00" W		
Flooding	30° 01' 18.60" N	090° 07' 00.00" W		
Unknown			29 57.30000'	-090 18.20000'
Unknown			29 58.09000'	-090 16.03000'
Unknown			29 43.51000'	-090 07.28000'
Extensive Damage Observed			29 20.53000'	-090 14.80000'
Damage Observed			29 20.15000'	-090 50.59000'
Unknown	28° 53' 02.40" N	090° 01' 19.20" W		
Unknown	29° 14' 54.00" N	090° 39' 42.00" W		
Unknown	29° 21' 02.88" N	089° 20' 01.08" W		
Unknown	29° 29' 37.98" N	089° 23' 19.02" W		
Unknown	29° 29' 46.98" N	089° 36' 49.98" W		
Unknown	29° 31' 54.36" N	090° 07' 54.42" W		
Unknown	29° 33' 51.00" N	089° 20' 09.00" W		
Unknown	29° 34' 18.96" N	090° 35' 38.46" W		
Unknown	29° 34' 22.80" N	090° 42' 43.80" W		

DD LAT	DD LON	Requestor	POC	Phone Number
29.120367	-90.201100	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.336000	-90.843167	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.517733	-90.141667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.536917	-90.050883	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
27.795236	-90.647539	D8 Prevention		
29.153167	-90.182667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.169000	-90.151333	D8 C4IT	LCDR Tuo	
29.239683	-89.363050	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.252167	-89.358000	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.253333	-89.358833	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.264167	-89.954833	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.296500	-90.648500	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.329667	-90.729667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.341500	-90.632167	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.342550	-90.737667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.348700	-90.247733	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.349167	-89.538000	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.368700	-90.602183	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.372750	-90.713300	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.386667	-90.617667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.388167	-90.588167	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.418333	-90.448167	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.437517	-90.564583	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.546933	-90.155600	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.548833	-90.397067	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.601183	-90.672283	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.624000	-89.918000	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.673000	-89.964000	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.808667	-89.761667	D8 C4IT	LCDR Tuo	
30.021833	-90.116667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
		SEC NOLA WWM	LCDR Patrick Frost	(504) 365-2228
		SEC NOLA WWM	LCDR Patrick Frost	(504) 365-2232
		SEC NOLA WWM	LCDR Patrick Frost	(504) 365-2237
		MSU HOUMA	LCDR Patrick Frost	(504) 365-2252
		MSU HOUMA	LCDR Patrick Frost	(504) 365-2253
28.884000	-90.022000	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.248333	-90.661667	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.350800	-89.333633	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.493883	-89.388617	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.496383	-89.613883	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.531767	-90.131783	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.564167	-89.335833	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.571933	-90.594017	SEC NOLA	LCDR Patrick Frost	(504) 365-2227
29.573000	-90.712167	SEC NOLA	LCDR Patrick Frost	(504) 365-2227

Email	DOR	LTIOV	DOC	Asset
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21	
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21 CBP-JPO-W-1637-21	USCBP DH-08
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21 CBP-JPO-W-1649-21	USCBP DH-08
			30AUG21 CBP-JPO-W-1651-21	USCBP DH-08
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21	
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21	
	28-Aug-21		02SEP21	Ground Team
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	NOAA
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21	
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	NOAA
			30AUG21 CBP-JPO-W-1648-21	USCBP DH-08
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21 CBP-JPO-W-1639-21	USCBP DH-08
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	NOAA
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	NOAA
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21 CBP-JPO-W-1650-21	USCBP DH-08
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21 Digiglobe	Open Source Imagery
patrick.a.frost@uscg.mil	28-Aug-21		30AUG21 CBP-JPO-W-1650-21	USCBP DH-08
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	NOAA
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	NOAA
	28-Aug-21		31SEP21	Ground Team
patrick.a.frost@uscg.mil	28-Aug-21		31AUG21	
patrick.a.frost@uscg.mil	2-Sep-21			
patrick.a.frost@uscg.mil	2-Sep-21			
patrick.a.frost@uscg.mil	2-Sep-21			
patrick.a.frost@uscg.mil	2-Sep-21		30-Aug-21	US CBP P14
patrick.a.frost@uscg.mil	2-Sep-21		30-Aug-21	US CBP P15
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			
patrick.a.frost@uscg.mil	28-Aug-21			

PED	RFI Status	Old NAI #	Notes
Complete	Open	NAI 118	
Complete	Open	NAI 95	
Complete	Open	NAI 26	
Complete	Open	NAI 22	
Complete	Open	NAI 14	
Complete	Open	NAI 119	
Complete	Open	NAI 6	
Complete	Open	NAI 36	
Complete	Open	NAI 30	
Complete	Open	NAI 31	
Complete	Open	NAI 28	
	Open	NAI 97	
	Open	NAI 101	
	Open	NAI 116	
	Open	NAI 96	
Complete	Open	NAI 108	
Complete	Open	NAI 33	
	Open	NAI 102	
Complete	Open	NAI 106	
	Open	NAI 99	
	Open	NAI 98	
	Open	NAI 117	
Complete	Open	NAI 110	
Complete	Open	NAI 27	
Complete	Open	NAI 112	
	Open	NAI 121	
Complete	Open	NAI 18	
Complete	Open	NAI 13	
Complete	Open	NAI 7	
Complete	Open	NAI 35	
	Open		
	Open		
	Open		
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
	Open	NAI 19	
	Open	NAI 103	
	Open	NAI 23	
	Open	NAI 21	
	Open	NAI 16	
	Open	NAI 24	
	Open	NAI 25	
	Open	NAI 100	
	Open	NAI 120	

0151	3	COMPANY_CANAL_SALT_WATER_INTRUSION_DEVICE
0080	3	MYRTLE_GROVE_MARINA
0139	3	BAYOU_BOEUF_LOCK
0060	3	COX_OPERATING_CHANDELEUR_SOUND_BLOCK_71
0061	3	COX_OPERATING_ELOI_BAY
0078	3	HOPEDALE_MARINA
0066	3	PORT_NEW_ORLEANS
0058	3	CARGILL_GRAINS_WESTWEGO
0189	3	CHEVRON_EMPIRE_OSTRICA_TERMINAL_OIL_FACILITY
0190	3	DAY_BROOK_FISHERIES_EMPIRE_FISH_OIL_FACILITY
0191	3	HILCORP_VENICE_DOME_OIL_FACILITY
0193	3	LOBO_GRAND_BAY_12_OIL_FACILITY
0194	3	MISSISSIPPI_CANYON_BLOCK_20_UNDERWATER_CONTAINMENT_SYSTEM
0195	3	PHILLIPS_BELLE_CHASSE_OIL_FACILITY
0196	3	STOLTHAVEN_BRAITWITHE_OIL_FACILITY
0198	3	WAGON_WHEEL_SPANISH_PASS_OIL_FIELD
0199	3	WHITNEY_GARDEN_ISLAND_BAY_FACILITY_OIL_PIT
0200	3	WHITNEY_SOUTH_PASS_EAST_BAY_CENTRAL_OIL_FIELD
0201	3	WHITNEY_TANK_BATTERY_OIL_FACILITY_FIELD
0202	3	YUMA_PLATFORM_MAIN_PASS_BLOCK_4
0021	4	A (Lucius)
0020	4	ARGOS
0002	4	A-Magnolia TLP
0016	4	A (Neptune TLP)
0018	4	A
0003	4	A-Auger TLP
0013	4	B (Helix)
0006	4	A-Jolliet TLP
0025	4	A(Thunder Horse
0034	4	A(DEVILS TOWER
0027	4	Gulfstar 1
0028	4	A (Thunder Hawk)
0030	4	A-Medusa Spar
0035	4	A- WHO DAT
0029	4	A-Appomattox
0175	4	ENERGY_PROPERTIES_BAY_JUNOP
0091	4	FRESHWATER_BAYOU_LOCK
0095	4	HILCORP_ENERGY_PECAN_ISLAND_PLATFORM_1
0100	4	KINETICA_PARTNERS_PECAN_ISLAND
0172	4	BARGE_FLEETING_AREA_BAYOU_CHENE
0096	4	HILCORP_ENERGY_PECAN_ISLAND_PLATFORM_3
0171	4	AMELIA_LA
0097	4	HILCORP_ENERGY_REDFISH_POINT
0102	4	LOTS_OF WELLHEADS_VERMILLION_BAY
0182	4	OIL_BARGE_AND_WELLHEADS_WEST_COTE_BLANCHE
0176	4	FRANCIS_DRILLING_BERWICK

Unknown	29° 37' 39.60" N	090° 33' 27.60" W		
Unknown	29° 38' 03.00" N	089° 57' 05.40" W		
Unknown	29° 40' 58.56" N	091° 10' 33.24" W		
Unknown	29° 42' 15.78" N	089° 24' 23.04" W		
Unknown	29° 46' 07.98" N	089° 22' 43.02" W		
Unknown	29° 49' 06.60" N	089° 36' 42.60" W		
Unknown	29° 54' 51.00" N	090° 06' 48.00" W		
Unknown	29° 56' 18.60" N	090° 08' 43.20" W		
Unknown			29 22.50660'	-089 33.15360'
Unknown			29 22.92900'	-089 35.60000'
Unknown			29 13.77000'	-089 23.40000'
Unknown			29 18.90000'	-089 17.10000'
Unknown			28 56.26000'	-088 58.23000'
Unknown			29 41.01000'	-089 58.54000'
Unknown			29 52.26000'	-089 56.96000'
Flooding/Damage			29 14.96000'	-089 24.64000'
Unknown			29 04.66000'	-089 10.63000'
Flooding/Damage			29 03.31100'	-089 18.39600'
Flooding/Damage			29 04.51200'	-089 09.88000'
Unknown			29 41.54500'	-089 21.99500'
Unkown	26° 07' 55.06"N	092° 02' 24.29"W		
Unkown	27° 10' 23.72"N	090° 21' 56.27"W		
Unkown	27° 12' 13.86"N	092° 12' 09.36"W		
Unkown	27° 22' 12.28"N	089° 55' 26.48"W		
Unkown	27° 30' 32.37"N	090° 33' 22.76"W		
Unkown	27° 32' 45.40"N	092° 26' 35.85"W		
Unkown	27° 43' 47.13"N	091° 06' 30.60"W		
Unkown	27° 46' 02.48"N	091° 30' 57.92"W		
Unkown	28° 11' 26.19"N	088° 29' 44.10"W		
Unkown	28° 12' 31.51"N	088° 44' 14.90"W		
Unkown	28° 14' 05.90"N	088° 59' 43.30"W		
Unkown	28° 16' 02.23"N	088° 23' 56.11"W		
Unkown	28° 23' 32.64"N	089° 27' 12.45"W		
Unkown	28° 24' 55.39"N	089° 00' 58.34"W		
Unkown	28° 34' 24.60"N	087° 56' 03.16"W		
Unknown	29° 14' 33.60" N	091° 00' 48.00" W		
Unknown	29° 33' 12.00" N	092° 18' 18.00" W		
Unknown	29° 35' 40.20" N	092° 21' 52.80" W		
Unknown	29° 36' 33.00" N	092° 20' 19.20" W		
Unknown	29° 37' 03.00" N	091° 06' 27.60" W		
Unknown	29° 37' 13.80" N	092° 23' 40.20" W		
Unknown	29° 39' 48.00" N	091° 05' 54.00" W		
Unknown	29° 40' 34.80" N	092° 02' 13.80" W		
Unknown	29° 40' 34.80" N	092° 02' 13.44" W		
Unknown	29° 41' 01.20" N	091° 48' 00.00" W		
Unknown	29° 41' 13.26" N	091° 12' 58.56" W		

29.627667	-90.557667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.634167	-89.951500	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.682933	-91.175900	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.704383	-89.406400	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.768883	-89.378617	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.818500	-89.611833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.914167	-90.113333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.938500	-90.145333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2229
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2230
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2231
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2233
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2234
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2235
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2236
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2238
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2239
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2240
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2241
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2242
26.131961	-92.040081	D8 Prevention	
27.173256	-90.365631	D8 Prevention	
27.203850	-92.202600	D8 Prevention	
27.370078	-89.924022	D8 Prevention	
27.508992	-90.556322	D8 Prevention	
27.545944	-92.443292	D8 Prevention	
27.729758	-91.108500	D8 Prevention	
27.767356	-91.516089	D8 Prevention	
28.190608	-88.495583	D8 Prevention	
28.208753	-88.737472	D8 Prevention	
28.234972	-88.995361	D8 Prevention	
28.267286	-88.398919	D8 Prevention	
28.392400	-89.453458	D8 Prevention	
28.415386	-89.016206	D8 Prevention	
28.573500	-87.934211	D8 Prevention	
29.242667	-91.013333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.553333	-92.305000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.594500	-92.364667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.609167	-92.338667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.617500	-91.107667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.620500	-92.394500	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.663333	-91.098333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.676333	-92.037167	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.676333	-92.037067	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.683667	-91.800000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.687017	-91.216267	SEC NOLA	LCDR Patrick Frost (504) 365-2227

[illegible][illegible]

	Open	NAI 105	
	Open	NAI 34	
	Open	NAI 93	
	Open	NAI 14	
	Open	NAI 15	
	Open	NAI 32	
	Open	NAI 20	
	Open	NAI 12	
	Open		
	Open		
	Open		
	Open		
	Open		
	Open		
Complete	Open		Sector Requests Reimage
	Open		
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
	Open	NAI 21	
	Open	NAI 20	
	Open	NAI 2	
	Open	NAI 16	
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	Open	NAI 13	
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	Open	NAI 45	
	Open	NAI 49	
	Open	NAI 54	
	Open	NAI 126	
	Open	NAI 50	
	Open	NAI 125	
	Open	NAI 51	
	Open	NAI 56	
	Open	NAI 136	
	Open	NAI 130	

0174	4	DERELICT_VESSEL_AMELIA
0180	4	MORGAN_CITY_LA
0086	4	CYPREMTORT_POINT
0181	4	OIL_BARGE_AND_WELLHEADS_EAST_COTE_BLANCHE
0173	4	BERWICK_LOCK
0103	4	PEAK_OPERATING_E_WHITE_LAKE
0090	4	FIELDWOOD_ENERGY_VERMILLION_SHORE_SCRUBBER
0084	4	BISON_ENERGY_PARTNERS
0111	4	TPIC_WEST_WHITE_LAKE_B
0183	4	PORT_OF_WEST_ST_MARY
0085	4	BROUSSARD_BROTHERS_OSVS
0098	4	INTRACOASTAL_CITY
0105	4	SHRIMP_DOCK_1
0110	4	TPIC_WEST_WHITE_LAKE_A
0101	4	LELAND_BOWMAN_LOCK
0106	4	SHRIMP_DOCK_2
0107	4	SHRIMP_DOCK_3
0112	4	TPIC_WEST_WHITE_LAKE_PRODUCTION
0099	4	JACK_UP_RIGS
0104	4	POGIE_FLEET
0092	4	HARVEST_MIDSTREAM_FORKED_ISLAND
0109	4	TPIC_FLORENCE_SOUTH
0089	4	DRY_DOCK
0177	4	HELIS_OIL_GAS
0187	4	WHITE_OAK_OPERATING_2
0186	4	WHITE_OAK_OPERATING_1
0083	4	ABBEVILLE_LA
0179	4	MERIDIAN_RESOURCES
0087	4	DELCAMBRE_1
0088	4	DELCAMBRE_2
0178	4	MCMORAN_HIGHLANDER_1
0184	4	ROUXOPCO
0185	4	TPIC_BAYOU_POSTILLION
0093	4	HILCORP_ENERGY_ATCHAFALAYA_RIVER
0094	4	HILCORP_ENERGY_BAYOU_BAYOU_CHENE
0136	4	WEBER_BARGE_FLEET
0117	4	CF_INDUSTRIES
0116	4	CARLINE_BURNSIDE_FLEET
0108	4	THYSSEN_PETROLEUM_BUTTE_LA_ROSE
0133	4	TT_BARGE_1
0114	4	BASF
0137	4	WHITE_CASTLE_ANCHORAGE
0124	4	KIRBY_FLEETING_1
0121	4	HONEYWELL
0132	4	TOTAL_PETROCHEMICALS_REFINING
0131	4	SHINTECH
0128	4	PLAQUEMINE_POINT_ANCHORAGE

Unknown	29° 41' 39.60" N	091° 05' 47.40" W
Unknown	29° 41' 48.00" N	091° 12' 48.00" W
Unknown	29° 42' 42.00" N	091° 52' 42.00" W
Unknown	29° 43' 08.94" N	091° 42' 00.30" W
Unknown	29° 43' 09.54" N	091° 13' 28.32" W
Unknown	29° 44' 08.40" N	092° 22' 01.20" W
Unknown	29° 44' 34.20" N	092° 21' 16.20" W
Unknown	29° 45' 18.12" N	092° 09' 48.54" W
Unknown	29° 45' 22.20" N	092° 33' 21.00" W
Unknown	29° 46' 24.00" N	091° 45' 30.00" W
Unknown	29° 46' 52.50" N	092° 11' 09.84" W
Unknown	29° 47' 00.00" N	092° 09' 12.00" W
Unknown	29° 47' 04.68" N	092° 09' 04.38" W
Unknown	29° 47' 04.80" N	092° 34' 34.20" W
Unknown	29° 47' 09.42" N	092° 12' 23.88" W
Unknown	29° 48' 06.00" N	092° 08' 18.00" W
Unknown	29° 48' 18.00" N	092° 08' 12.00" W
Unknown	29° 48' 31.80" N	092° 35' 43.80" W
Unknown	29° 48' 49.50" N	092° 08' 09.12" W
Unknown	29° 49' 18.00" N	092° 07' 54.00" W
Unknown	29° 50' 09.00" N	092° 17' 57.00" W
Unknown	29° 51' 12.00" N	092° 31' 14.40" W
Unknown	29° 52' 30.00" N	092° 07' 48.00" W
Unknown	29° 52' 59.22" N	091° 18' 03.54" W
Unknown	29° 53' 22.92" N	091° 19' 05.64" W
Unknown	29° 53' 22.98" N	091° 19' 05.76" W
Unknown	29° 53' 48.00" N	092° 06' 54.00" W
Unknown	29° 55' 09.72" N	091° 07' 29.82" W
Unknown	29° 56' 36.00" N	091° 58' 54.00" W
Unknown	29° 56' 54.00" N	091° 58' 54.00" W
Unknown	29° 57' 11.40" N	091° 19' 24.90" W
Unknown	29° 58' 20.22" N	091° 20' 27.30" W
Unknown	29° 58' 36.18" N	091° 18' 51.66" W
Unknown	30° 03' 35.33" N	091° 29' 20.82" W
Unknown	30° 07' 34.02" N	091° 32' 51.18" W
Unknown	30° 08' 15.36" N	091° 30' 37.34" W
Unknown	30° 09' 33.66" N	091° 35' 58.50" W
Unknown	30° 12' 48.00" N	091° 32' 00.00" W
Unknown	30° 16' 07.38" N	091° 36' 57.66" W
Unknown	30° 17' 01.96" N	091° 01' 25.43" W
Unknown	30° 19' 29.94" N	091° 00' 20.22" W
Unknown	30° 19' 46.90" N	091° 10' 34.40" W
Unknown	30° 21' 06.84" N	091° 04' 17.52" W
Unknown	30° 21' 39.96" N	091° 05' 30.00" W
Unknown	30° 22' 07.98" N	091° 06' 42.60" W
Unknown	30° 27' 17.80" N	091° 16' 40.18" W
Unknown	30° 27' 30.00" N	091° 15' 30.00" W

29.694333	-91.096500	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.696667	-91.213333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.711667	-91.878333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.719150	-91.700083	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.719317	-91.224533	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.735667	-92.367000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.742833	-92.354500	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.755033	-92.163483	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.756167	-92.555833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.773333	-91.758333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.781250	-92.186067	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.783333	-92.153333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.784633	-92.151217	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.784667	-92.576167	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.785950	-92.206633	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.801667	-92.138333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.805000	-92.136667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.808833	-92.595500	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.813750	-92.135867	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.821667	-92.131667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.835833	-92.299167	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.853333	-92.520667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.875000	-92.130000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.883117	-91.300983	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.889700	-91.318233	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.889717	-91.318267	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.896667	-92.115000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.919367	-91.124950	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.943333	-91.981667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.948333	-91.981667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.953167	-91.323583	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.972283	-91.340917	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.976717	-91.314350	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.059814	-91.489117	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.126117	-91.547550	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.137600	-91.510372	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.159350	-91.599583	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.213333	-91.533333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.268717	-91.616017	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.283878	-91.023731	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.324983	-91.005617	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.329694	-91.176222	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.351900	-91.071533	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.361100	-91.091667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.368883	-91.111833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.454944	-91.277828	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.458333	-91.258333	SEC NOLA	LCDR Patrick Frost (504) 365-2227

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Open	NAI 40
Open	NAI 135
Open	NAI 127
Open	NAI 57
Open	NAI 44
Open	NAI 38
Open	NAI 65
Open	NAI 137
Open	NAI 39
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Open	NAI 59
Open	NAI 64
Open	NAI 55
Open	NAI 60
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Open	NAI 66
Open	NAI 53
Open	NAI 58
Open	NAI 46
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Open	NAI 70
Open	NAI 62
Open	NAI 87
Open	NAI 68
Open	NAI 91
Open	NAI 78
Open	NAI 75
Open	NAI 86
Open	NAI 85
Open	NAI 82

0129	4	PLAQUEMINE_POINT_SHIPYARD
0118	4	DOW
0126	4	KIRBY_WESTERN_FLEET
0115	4	BATON_ROUGE_ANCHORAGE
0122	4	INGRAM_BARGE_FLEET
0127	4	MCKINNEY_FLEET_BARGE
0130	4	PORT_BATON_ROUGE
0135	4	UBATON_ROUGE_ANCHORAGE
0125	4	KIRBY_FLEETING_2
0120	4	EXXON_MOBIL
0123	4	INTERCONTINENTAL_TERMINALS
0113	4	ACBL_TIGER_FLEET
0134	4	TT_BARGE_2
0119	4	ECO_SERVICES
0203	4	COCODRIE_LA
0204	4	BAYOU_DULARGE_BRIDGE
0205	4	LAROSE_BRIDGE
0206	4	PROSPECT_BRIDGE
0207	4	BAYOU_BLACK_FLOODGATE
0208	4	BAYOU_BOEUF_LOCK
0209	4	BAYOU_GRAND_CALLIOU_FLOODGATE
0210	4	BUBBA_DOVE_FLOODGATE
0211	4	FALGOUT_CANAL_FLOODGATE
0214	4	PLACID_CANAL_FLOODGATE
0215	4	S2_ENERGY_COQUILLE_BAY
0216	4	LOOP
0217	4	HOST_TERMINAL_UNITED_BULK_55
0218	4	BELLEVUE_TERMINALS_UBT
0219	4	CARGILL_GRAINS_WESTWEGO
0220	4	ANT_DULAC
0221	4	VENICE_MARINA
0222	4	CYPRESS_COVE
0223	4	JOSHUAS_MARINA
0224	4	MYRTLE_GROVE_MARINA
0225	4	BOURG_OSV_STORAGE
0226	4	HOUMA_OSV_STORAGE
0227	4	BAYOU_PETIT_CALLIOU_FLOODGATE
0228	4	BAYOU_TERREBONNE_FLOODGATE
0229	4	BUSH_CANAL_FLOODGATE
0230	4	COMPANY_CANAL_SALT_WATER_INTRUSION_DEVICE
0231	4	PORT_HOUMA_TERREBONNE
0232	4	THREE BAY BAYOU
0233	4	WEST LITTLE LAKE DAMAGED FACILITY
0234	4	CANTIUM PLATFORM
0235	4	BURNED FISHING VESSELS IN EMPIRE LA
0236	4	SUNKEN BARGE
0043	5	A - Jack St. Ma

Unknown	30° 29' 23.77" N	091° 22' 33.71" W		
Unknown	30° 31' 38.34" N	091° 23' 23.82" W		
Unknown	30° 36' 55.44" N	091° 22' 53.20" W		
Unknown	30° 39' 11.17" N	091° 21' 08.00" W		
Unknown	30° 42' 12.00" N	091° 20' 22.91" W		
Unknown	30° 42' 14.66" N	091° 19' 28.03" W		
Unknown	30° 43' 36.00" N	091° 20' 03.00" W		
Unknown	30° 45' 47.32" N	091° 21' 08.02" W		
Unknown	30° 46' 47.82" N	091° 19' 33.00" W		
Unknown	30° 48' 19.98" N	091° 17' 45.00" W		
Unknown	30° 48' 49.98" N	091° 20' 10.02" W		
Unknown	30° 51' 10.94" N	091° 22' 50.13" W		
Unknown	30° 51' 22.84" N	091° 21' 24.94" W		
Unknown	31° 07' 23.33" N	091° 00' 55.00" W		
No Damage Observed			29 14.90000'	-090 39.70000'
No Damage Observed			29 34.10000'	-090 43.26000'
No Damage Observed			29 34.15000'	-090 23.12000'
No Damage Observed			29 36.07100'	-090 40.33700'
No Damage Observed			29 40.27000'	-091 00.53000'
No Damage Observed			29 40.97600'	-091 10.55400'
No Damage Observed			29 20.55300'	-090 44.26000'
No Damage Observed			29 19.78000'	-090 43.78000'
No Damage Observed			29 24.94000'	-090 47.35000'
No Damage Observed			29 20.49000'	-090 37.93000'
Unknown			29 21.04800'	-089 20.01800'
Unknown			28 53.04000'	-090 01.32000'
Unknown			29 37.08000'	-089 53.64000'
Unknown			29 37.18000'	-089 53.57000'
Unknown			29 56.31000'	-090 08.72000'
Unknown			29 22.64000'	-090 42.87000'
Unknown			29 14.38100'	-089 21.78300'
Unknown			29 15.20000'	-089 21.53000'
Unknown			29 20.95000'	-089 32.28000'
Unknown			29 38.05000'	-089 57.09000'
Unknown			29 34.31600'	-090 35.64100'
Unknown			29 33.44800'	-090 43.25400'
Unknown			29 17.79000'	-090 38.91000'
Unknown			29 23.29000'	-090 35.29000'
Unknown			29 22.12200'	-090 36.13100'
Unknown			29 37.66000'	-090 33.46000'
Unknown			29 34.38000'	-090 42.73000'
Unknown			29 32.66460	090 03.360282
Unknown			29 32.8000	090 09.33500
Unknown			29 24.000	088 57.65000
Unknown			29 13.53600	089 21.64200
Unknown			30 00.53000	090 27.5000
No Damage Observed	26° 14' 05.94"N	091° 15' 39.98"W		

30.489936	-91.376031	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.527317	-91.389950	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.615400	-91.381444	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.653103	-91.352222	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.703333	-91.339697	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.704072	-91.324453	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.726667	-91.334167	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.763144	-91.352228	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.779950	-91.325833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.805550	-91.295833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.813883	-91.336117	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.853039	-91.380592	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.856344	-91.356928	SEC NOLA	LCDR Patrick Frost (504) 365-2227
31.123147	-91.015278	SEC NOLA	LCDR Patrick Frost (504) 365-2227
		MSU HOUMA	LCDR Patrick Frost (504) 365-2243
		MSU HOUMA	LCDR Patrick Frost (504) 365-2244
		MSU HOUMA	LCDR Patrick Frost (504) 365-2245
		MSU HOUMA	LCDR Patrick Frost (504) 365-2246
		MSU HOUMA	LCDR Patrick Frost (504) 365-2247
		MSU HOUMA	LCDR Patrick Frost (504) 365-2248
		MSU HOUMA	LCDR Patrick Frost (504) 365-2249
		MSU HOUMA	LCDR Patrick Frost (504) 365-2250
		MSU HOUMA	LCDR Patrick Frost (504) 365-2251
		MSU HOUMA	LCDR Patrick Frost (504) 365-2254
		SEC NOLA FACILITIES	LCDR Patrick Frost (504) 365-2255
		SEC NOLA FACILITIES	LCDR Patrick Frost (504) 365-2256
		SEC NOLA FACILITIES	LCDR Patrick Frost (504) 365-2257
		SEC NOLA FACILITIES	LCDR Patrick Frost (504) 365-2258
		SEC NOLA FACILITIES	LCDR Patrick Frost (504) 365-2259
		SEC NOLA LOGISTICS	LCDR Patrick Frost (504) 365-2260
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2261
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2262
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2263
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2264
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2265
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2266
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2267
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2268
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2269
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2270
		SEC NOLA MSU HOUMA	LCDR Patrick Frost (504) 365-2271
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2272
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2273
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2274
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2275
		SEC NOLA MER	LCDR Patrick Frost (504) 365-2276
26.234983	-91.261106	D8 Prevention	

[illegible][illegible]

	Open	NAI 83	
	Open	NAI 72	
	Open	NAI 80	
	Open	NAI 69	
	Open	NAI 76	
	Open	NAI 81	
	Open	NAI 84	
	Open	NAI 89	
	Open	NAI 79	
	Open	NAI 74	
	Open	NAI 77	
	Open	NAI 67	
	Open	NAI 88	
	Open	NAI 73	
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Open		Sector Requests Reimage
Complete	Closed	NAI 43	

0044	5	A - Turritella
0041	5	A-BW Pioneer
0042	5	A-Big Foot
0019	5	A (Heidelberg)
0009	5	A (MAD DOG SPAR)
0008	5	A (Atlantis)
0007	5	A (Constitution
0005	5	A (MTLP Shenzi)
0012	5	A (HOLSTEIN SPAR)
0011	5	A-Tahiti-SPAR
0004	5	A(TLP MARCO POL
0015	5	A-Front Runner
0010	5	A (ALLEGHENY SEA)
0017	5	A-Genesis Spar
0001	5	A-Prince TLP
0031	5	A (Mirage/Titan)
0022	5	A-Ursa TLP
0033	5	B (Olympus)
0032	5	A-Mars TLP
0037	5	A (Blind Faith)
0026	5	A (NA KIKA FPDS)
0024	5	A(MATTERHORN SE
0036	5	A-Delta House
0023	5	A (HORN MOUNTAIN)
0045	5	Cold Stacked Rigs
0150	5	COLD_STACKED_RIGS_ST32
0046	5	Cold Stacked Rigs
0040	5	A-Ram Powell
0039	5	A-Marlin TLP
0038	5	A-Neptune Spar
0056	5	RFF_VENICE
0160	5	LOWER_BAYOU_DULARGE_FLOOD_BARGE
0159	5	LEON_THERIOT_FLOODGATE
0054	5	RFF_TERREBONNE
0161	5	LOWER_LITTLE_CALLIOU_FLOODGATE
0153	5	FALGOUT_CANAL_FLOODGATE
0170	5	UPPER_LITTLE_CAILLOU_AUX_GATE
0155	5	HOUMA_OSV_STORAGE
0140	5	BAYOU_DULARGE_BRIDGE
0157	5	LAROSE_BRIDGE
0168	5	TED_GISCLAIR_FLOODGATE
0169	5	TWIN_SPAN_BRIDGE

No Damage Observed	26° 25' 39.88"N	090° 50' 00.56"W		
No Damage Observed	26° 41' 46.24"N	090° 30' 30.16"W		
No Damage Observed	26° 55' 55.33"N	090° 31' 14.95"W		
No Damage Observed	27° 06' 41.14"N	090° 45' 50.26"W		
No Damage Observed	27° 11' 18.12"N	090° 16' 07.36"W		
No Damage Observed	27° 11' 43.64"N	090° 01' 37.14"W		
No Damage Observed	27° 17' 31.94"N	090° 58' 04.87"W		
No Damage Observed	27° 18' 02.24"N	090° 08' 06.00"W		
No Damage Observed	27° 19' 16.42"N	090° 32' 07.68"W		
No Damage Observed	27° 19' 33.26"N	090° 42' 50.94"W		
No Damage Observed	27° 21' 43.63"N	090° 10' 52.99"W		
No Damage Observed	27° 37' 29.42"N	090° 26' 27.77"W		
No Damage Observed	27° 41' 29.65"N	090° 16' 31.93"W		
No Damage Observed	27° 46' 45.32"N	090° 31' 08.06"W		
No Damage Observed	27° 59' 33.63"N	090° 19' 32.93"W		
No Damage Observed	28° 02' 01.13"N	089° 06' 02.72"W		
No Damage Observed	28° 09' 14.49"N	089° 06' 12.79"W		
No Damage Observed	28° 09' 35.58"N	089° 14' 20.85"W		
No Damage Observed	28° 10' 10.28"N	089° 13' 22.35"W		
No Damage Observed	28° 20' 29.52"N	088° 15' 56.47"W		
No Damage Observed	28° 31' 15.25"N	088° 17' 19.64"W		
No Damage Observed	28° 44' 32.16"N	088° 49' 32.27"W		
No Damage Observed	28° 45' 16.13"N	088° 16' 02.33"W		
No Damage Observed	28° 51' 57.65"N	088° 03' 22.55"W		
No Damage Observed	28° 55' 52.68"N	090° 16' 11.99"W		
No Damage Observed	28° 58' 08.76" N	090° 27' 09.72" W		
No Damage Observed	28° 58' 25.32"N	090° 27' 04.32"W		
No Damage Observed	29° 03' 38.26"N	088° 05' 30.19"W		
No Damage Observed	29° 06' 27.20"N	087° 56' 37.03"W		
No Damage Observed	29° 09' 48.43"N	087° 59' 15.92"W		
No Damage Observed	29° 17' 59.40" N	089° 22' 28.20" W		
No Damage Observed	29° 20' 09.00" N	090° 50' 35.40" W		
No Damage Observed	29° 20' 31.80" N	090° 14' 48.00" W		
No Damage Observed	29° 20' 48.00" N	090° 49' 49.20" W		
No Damage Observed	29° 23' 12.60" N	090° 37' 04.80" W		
No Damage Observed	29° 24' 56.40" N	090° 47' 21.00" W		
No Damage Observed	29° 32' 56.40" N	090° 37' 58.80" W		
No Damage Observed	29° 33' 26.88" N	090° 43' 15.24" W		
No Damage Observed	29° 34' 06.00" N	090° 43' 15.60" W		
No Damage Observed	29° 34' 09.00" N	090° 23' 07.20" W		
No Damage Observed	29° 34' 17.40" N	090° 22' 52.80" W		
No Damage Observed	29° 35' 57.00" N	090° 42' 37.20" W		

26.427744	-90.833489	D8 Prevention	
26.696178	-90.508378	D8 Prevention	
26.932036	-90.520819	D8 Prevention	
27.111428	-90.763961	D8 Prevention	
27.188367	-90.268711	D8 Prevention	
27.195456	-90.026983	D8 Prevention	
27.292206	-90.968019	D8 Prevention	
27.300622	-90.135000	D8 Prevention	
27.321228	-90.535467	D8 Prevention	
27.325906	-90.714150	D8 Prevention	
27.362119	-90.181386	D8 Prevention	
27.624839	-90.441047	D8 Prevention	
27.691569	-90.275536	D8 Prevention	
27.779256	-90.518906	D8 Prevention	
27.992675	-90.325814	D8 Prevention	
28.033647	-89.100756	D8 Prevention	
28.154025	-89.103553	D8 Prevention	
28.159883	-89.239125	D8 Prevention	
28.169522	-89.222875	D8 Prevention	
28.341533	-88.265686	D8 Prevention	
28.520903	-88.288789	D8 Prevention	
28.742267	-88.825631	D8 Prevention	
28.754481	-88.267314	D8 Prevention	
28.866014	-88.056264	D8 Prevention	
28.931300	-90.269997	D8 Prevention	
28.969100	-90.452700	SEC NOLA	LCDR Patrick Frost (504) 365-2227
28.973700	-90.451200	D8 Prevention	
29.060628	-88.091719	D8 Prevention	
29.107556	-87.943619	D8 Prevention	
29.163453	-87.987756	D8 Prevention	
29.299833	-89.374500	D8 C4IT	LCDR Tuo
29.335833	-90.843167	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.342167	-90.246667	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.346667	-90.830333	D8 C4IT	LCDR Tuo
29.386833	-90.618000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.415667	-90.789167	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.549000	-90.633000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.557467	-90.720900	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.568333	-90.721000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.569167	-90.385333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.571500	-90.381333	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.599167	-90.710333	SEC NOLA	LCDR Patrick Frost (504) 365-2227

	28-Aug-21	30AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	30AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	29AUG21	
	28-Aug-21	29AUG21	
	28-Aug-21	29AUG21	
	28-Aug-21	29AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	NOAA
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	NOAA
		NOAA	
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	NOAA
	28-Aug-21	NOAA	
	28-Aug-21	31AUG21	NOAA
		31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	NOAA	NOAA
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	NOAA
		31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	NOAA	
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	NOAA
		31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	NOAA	NOAA
		31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	NOAA	NOAA
		31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	NOAA	NOAA
		31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	NOAA	NOAA

Complete	Closed	NAI 44
Complete	Closed	NAI 41
Complete	Closed	NAI 42
Complete	Closed	NAI 19
Complete	Closed	NAI 9
Complete	Closed	NAI 8
Complete	Closed	NAI 7
Complete	Closed	NAI 5
Complete	Closed	NAI 12
Complete	Closed	NAI 11
Complete	Closed	NAI 4
Complete	Closed	NAI 15
Complete	Closed	NAI 10
Complete	Closed	NAI 17
Complete	Closed	NAI 1
Complete	Closed	NAI 31
Complete	Closed	NAI 22
Complete	Closed	NAI 33
Complete	Closed	NAI 32
Complete	Closed	NAI 37
Complete	Closed	NAI 26
Complete	Closed	NAI 24
Complete	Closed	NAI 36
Complete	Closed	NAI 23
Complete	Closed	NAI 45
Complete	Closed	NAI 104
Complete	Closed	NAI 46
Complete	Closed	NAI 40
Complete	Closed	NAI 39
Complete	Closed	NAI 38
Complete	Closed	NAI 10
Complete	Closed	NAI 114
Complete	Closed	NAI 113
Complete	Closed	NAI 8
Complete	Closed	NAI 115
Complete	Closed	NAI 107
Complete	Closed	NAI 124
Complete	Closed	NAI 109
Complete	Closed	NAI 94
Complete	Closed	NAI 111
Complete	Closed	NAI 122
Complete	Closed	NAI 123

LCDR Tuo Requested Imagery

0063	5	HOST_TERMINAL_UNITED_BULK_55
0057	5	BELLEVUE_TERMINALS_UBT
0049	5	RFF_BAYOU_SALLE
0051	5	RFF_PECAN_ISLAND
0138	5	BAYOU_BLACK_FLOODGATE
0075	5	STA_NEW_ORLEANS
0050	5	RFF_GRAMERCY
0048	5	RFF_BATON_ROUGE
0055	5	RFF_VANCLEAVE
0047	5	RFF_BACHELOR

No Damage Observed	29° 37' 04.80" N	089° 53' 38.40" W
No Damage Observed	29° 37' 10.80" N	089° 53' 34.20" W
No Damage Observed	29° 38' 18.60" N	091° 31' 02.40" W
No Damage Observed	29° 38' 30.90" N	092° 25' 34.80" W
No Damage Observed	29° 40' 16.20" N	091° 00' 31.80" W
No Damage Observed	30° 01' 12.00" N	090° 07' 18.60" W
No Damage Observed	30° 04' 25.20" N	090° 42' 13.92" W
No Damage Observed	30° 22' 50.40" N	091° 03' 16.50" W
No Damage Observed	30° 29' 09.12" N	088° 42' 53.04" W
No Damage Observed	30° 52' 20.70" N	091° 40' 23.64" W

29.618000	-89.894000	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.619667	-89.892833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
29.638500	-91.517333	D8 C4IT	LCDR Tuo
29.641917	-92.426333	D8 C4IT	LCDR Tuo
29.671167	-91.008833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.020000	-90.121833	SEC NOLA	LCDR Patrick Frost (504) 365-2227
30.073667	-90.703867	D8 C4IT	LCDR Tuo
30.380667	-91.054583	D8 C4IT	LCDR Tuo
30.485867	-88.714733	D8 C4IT	LCDR Tuo
30.872417	-91.673233	D8 C4IT	LCDR Tuo

patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	NOAA
patrick.a.frost@uscg.mil	28-Aug-21		
	28-Aug-21	01SEP21	Ground Team
	28-Aug-21	01SEP21	Ground Team
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	
patrick.a.frost@uscg.mil	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	31AUG21	
	28-Aug-21	01SEP21	Ground Team
	28-Aug-21	01SEP21	Ground Team

Complete	Closed	NAI 17
	Closed	NAI 11
Complete	Closed	NAI 3
Complete	Closed	NAI 5
Complete	Closed	NAI 92
Complete	Closed	NAI 29
Complete	Closed	NAI 4
Complete	Closed	NAI 2
Complete	Closed	NAI 9
N/A	Closed	NAI 1

29 57.30000'	-090 18.20000'	29
29 58.09000'	-090 16.03000'	
29 43.51000'	-090 07.28000'	
29 22.50660'	-089 33.15360'	
29 22.92900'	-089 35.60000'	
29 13.77000'	-089 23.40000'	
29 18.90000'	-089 17.10000'	
28 56.26000'	-088 58.23000'	
29 41.01000'	-089 58.54000'	
29 52.26000'	-089 56.96000'	
29 14.96000'	-089 24.64000'	
29 04.66000'	-089 10.63000'	
29 03.31100'	-089 18.39600'	
29 04.51200'	-089 09.88000'	
29 41.54500'	-089 21.99500'	
29 14.90000'	-090 39.70000'	
29 34.10000'	-090 43.26000'	
29 34.15000'	-090 23.12000'	
29 36.07100'	-090 40.33700'	
29 40.27000'	-091 00.53000'	
29 40.97600'	-091 10.55400'	
29 20.55300'	-090 44.26000'	
29 19.78000'	-090 43.78000'	
29 24.94000'	-090 47.35000'	
29 20.53000'	-090 14.80000'	
29 20.15000'	-090 50.59000'	
29 20.49000'	-090 37.93000'	
29 21.04800'	-089 20.01800'	
28 53.04000'	-090 01.32000'	
29 37.08000'	-089 53.64000'	
29 37.18000'	-089 53.57000'	
29 56.31000'	-090 08.72000'	
29 22.64000'	-090 42.87000'	
29 14.38100'	-089 21.78300'	
29 15.20000'	-089 21.53000'	
29 20.95000'	-089 32.28000'	
29 38.05000'	-089 57.09000'	
29 34.31600'	-090 35.64100'	
29 33.44800'	-090 43.25400'	
29 17.79000'	-090 38.91000'	
29 23.29000'	-090 35.29000'	
29 22.12200'	-090 36.13100'	
29 37.66000'	-090 33.46000'	
29 34.38000'	-090 42.73000'	
29 32.66460	090 03.360282	
29 32.8000	090 09.33500	
29 24.000	088 57.65000	

29 13.53600	089 21.64200
30 00.53000	090 27.5000

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/2/2021 11:29:09 PM
To: samfritcher airborneaspect.com [samfritcher@airborneaspect.com]
CC: Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Thanks Sam. Do you have any more information on tracon? I tried to google the name and came up with nothing.

From: samfritcher airborneaspect.com <samfritcher@airborneaspect.com>
Sent: Thursday, September 2, 2021 5:48 PM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Cc: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Subject: Re: EPA ASPECT Opening Up Lines of Communication

The freq is whatever tracon gives me. Our call sign is N9738B. Working altitude is 3000 and below.

Best Regards,

Sam Fritcher
AIRBORNE ASPECT, Inc
CEO, President
410-258-6281 cell
samfritcher@airborneaspect.com

On Sep 2, 2021, at 4:13 PM, Taylor, Jillianne <Taylor.Jillianne@epa.gov> wrote:

Thanks Tony!

And Sam, I meant just to send the info to us, not straight to LT Herr, just for clarification. I could make some guesses – is our call sign just our tail number (N9738b)? I know our working altitude is 2800 ft, but not sure what our frequency is.

Thanks!
Jill

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 4:10 PM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>; samfritcher airborneaspect.com <samfritcher@airborneaspect.com>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Please do Sam, but note that I've just spoken with LT Herr and informed him that ASPECT has landed

V/R,

Tony Honnellio

Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Sent: Thursday, September 2, 2021 5:08 PM
To: samfritcher airborneaspect.com <samfritcher@airborneaspect.com>
Cc: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Subject: FW: EPA ASPECT Opening Up Lines of Communication

Sam,

Can you provide the information requested below?

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 4:02 PM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

EPA,

Request Freq, callsign, and working altitude of your aircraft. We have a 144 going up in same area. Will pass same when I have it.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 11:45 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV

USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

LT Herr,

EPA ASPECT has received authorization to collect data for the Hurricane Ida response. The Team is re-tooling for this mission and should be in the air heading towards St. Charles Parish in about an hour. EPA Region 6 has given ASPECT a list of priority sites and will target them first. We would like to start coordination efforts such that ASPECT can assist with priority target assessment, chemical/oil release investigations and to reduce replication of effort.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Sent: Thursday, September 2, 2021 10:44 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

I think the affected area is not under your bird but ill pass this anyways. This is our current collection effort.

This is the information I need for new RFIs. You can submit one RFI with a list of targets.

Date of Request: DDMMYY

Priority: 1 Critical (24 hours), 2 High (72 Hrs), 3 Normal (7 Days), 4 Routine (As Available)

Facility Name: S2 Energy West Little Lake

Lat/Lon: 29° 32' 48.96" N 090° 09' 20.16" W

Requesting Agency: Sector NOLA

POC: John Smith

Phone Number: XXX-XXX-XXXX

Email: john.smith@uscg.mil

Last Time Information of Value: DDMMYY

Specific Collection Request: What to you need to know?

Justification: Required for Priority 1 or 2 (Priority 1 requests will only be granted for SAR and Force Reconstitution ATT)

Notes: Provide any amplifying information

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager
Area Command

O: 314-269-2642
C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 10:23 AM
To: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

We will be flying in the Terrell, TX this morning for calibrations.

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Sent: Thursday, September 2, 2021 10:12 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

Do you know rough area you intend to fly? I may have targets where you want to be.

VR
LT Kevin Herr
RFI/CRM/COM/ISR Manager

Area Command

O: 314-269-2642

C: 813-217-3418

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>

Sent: Thursday, September 2, 2021 9:45 AM

To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: [Non-DoD Source] RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>

Sent: Thursday, September 2, 2021 9:26 AM

To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>

Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>

Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic
W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/3/2021 2:02:41 PM
To: samfritcher airborneaspect.com [samfritcher@airborneaspect.com]
Subject: Maps for Ida Priority Cites
Attachments: Priority Maps_EPA_Ida_Response.pdf



Flight Info:

Optimal Flight Altitude – 2800ft

Tail – N9738B

Home – Addison, TX (ADS)

FOB – Beaumont, TX (BMT)

Refuel – Baton Rouge (BTR)

Mission Objectives:

Chemical & Oil Release Screening

High Resolution Imagery

20210903 Flight Plan:

1000 CDT ADS-> AOR

1300 CDT - AOR

~1400 CDT – BTR

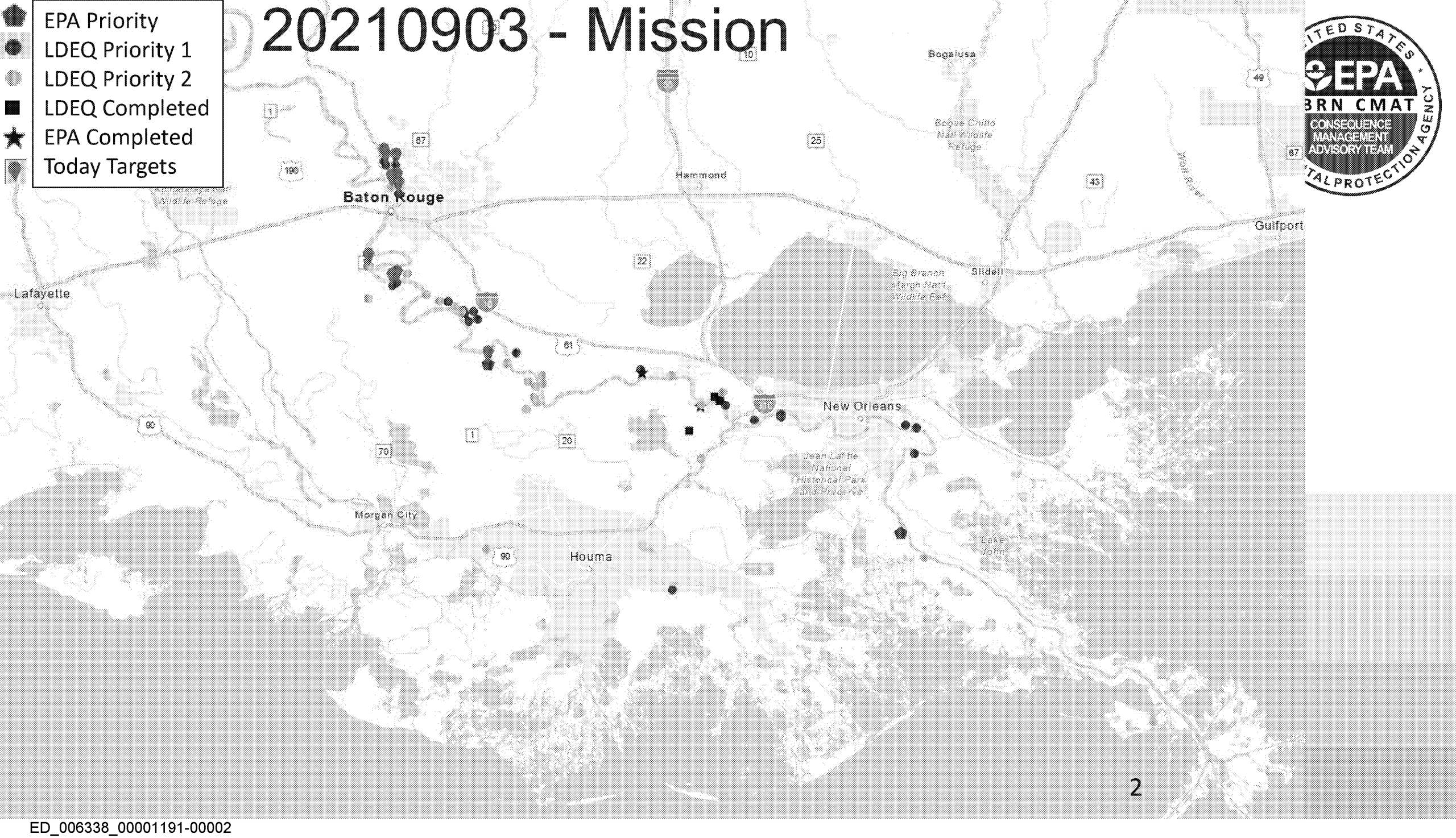
~1600 CDT – AOR

1900 CDT – AOR-> BMT

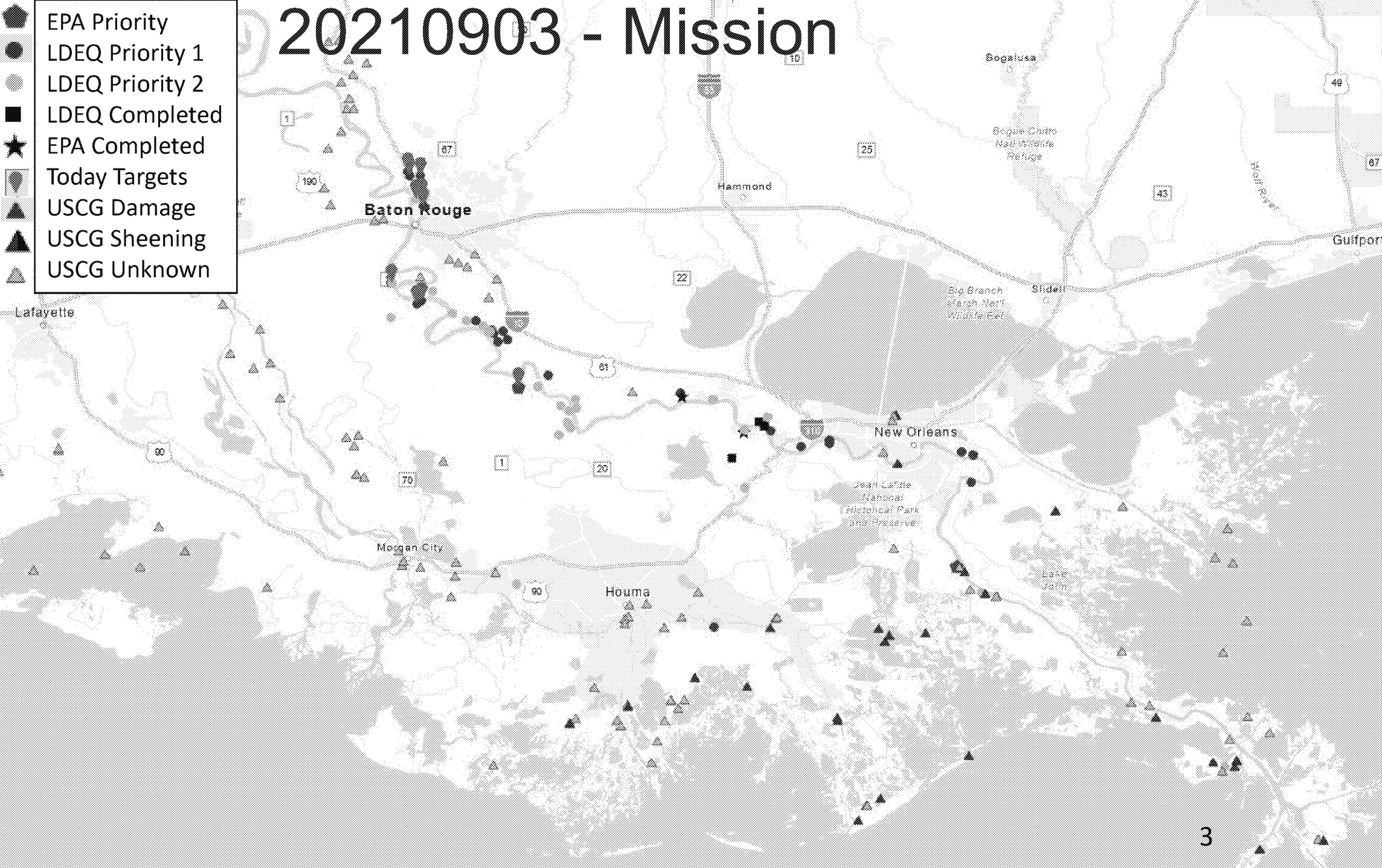
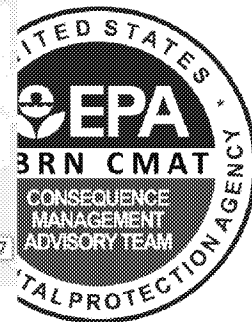
Mission Support to Louisiana Department of Environmental Quality via EPA Region 6
Coordinating with USCG Southcom J2
Sat Comm Issues with Data Tx; Working Data Sharing/Access

- EPA Priority
- LDEQ Priority 1
- LDEQ Priority 2
- LDEQ Completed
- ★ EPA Completed
- 📍 Today Targets

20210903 - Mission



20210903 - Mission



Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/4/2021 1:02:39 AM
To: Argenta, Edward [Argenta.Edward@epa.gov]
Subject: FW: Draft Report
Attachments: ASPECT Summary - Hurricane IDA 2 September 2021.docx

Ed – can you take a look at getting a report of some met data for yesterday?

From: Turville Rick <Rick.Turville@kalmancoinc.com>
Sent: Friday, September 3, 2021 7:26 AM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: Draft Report

Jill,

As we discussed last night I took a VERY draft crack at the start of a Report. I know the attached is real weak. Used the Winter Storm URI as a template. Still has URI placeholders. All we really have is some background data. But, I wanted to share to see if we are on the right track. We can add the list of targets, etc.

Also doing the Same with the QAPP.

Rick Turville
Kalman and Company, Inc.
1000 Corporate Center, Suite 301
Stafford, VA 22554
540-628-7325 - Office
757-353-8302 - Cell



Airborne Spectral Photometric Environmental Collection Technology

ASPECT Air Quality Survey Baton Rouge, LA. 2 September 2021



ASPECT Mission Supporting:
On-Scene Coordinator

Initial Mission Request

ASPECT TEAM

Jill Taylor
Chemical/Photometric Lead
Taylor.Jillianne@EPA.gov
214-406-9896

Table of Contents

[TOC \o "1-3" \h \z \u]

Acronyms and Abbreviations

Alt	Altitude (in feet)
AGL	Above Ground Level
cm	centimeter
CST	Central Standard Time
DFW	Dallas—Fort Worth International Airport
DEM	Digital Elevation Model
Digital	Digital photography file from the Nikon D2X camera
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
igm	Spectral data format based on grams format
IR	Infrared
IRLS	Infrared Line Scanner
jpg	JPEG image format
kts	knots
mph	miles per hour
m/s	meters per second
MSIC	Digital photography file from the Imperx mapping camera
MSL	Mean Sea Level Altitude (in feet)
ppm	parts per million
UTC	Universal Time Coordinated

Executive Summary

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library were detected in the areas affected by IDA. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected. Visible and IR imagery both showed hot flare and steam vents suggesting that facilities are operational.

ASPECT missions conducted on 2 Sep 2021 were hampered by slow Satellite speeds due to large power outages on the ground. ASPECT was able to collect limited data sets near XXXX, LA. A total of 10 data collection runs over the Corpus Christi area. No compounds were detected on these missions.

ASPECT Air Quality Survey

Hurricane IDA

Baton Rouge, LA

2 September 2021

Background and Operational Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library were detected in the areas affected by IDA. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected. Visible and IR imagery both showed hot flare and steam vents suggesting that facilities are operational.

ASPECT missions conducted on 2 Sep 2021 were hampered by slow Satellite speeds due to large power outages on the ground. ASPECT was able to collect limited data sets near XXXX, LA. A total of 10 data collection runs over the Corpus Christi area. No compounds were detected on these missions.

General Mission Objectives

Once granted access to fly over the sites, the following general mission objectives were employed in conducting data collection with ASPECT:

1. To capture an overall, situational awareness of the incident using aerial photography with:
 - Oblique camera—photos taken by hand from the view/position of the co-pilot, and
 - MSIC photos—advanced camera mounted underneath the plane for a top-down view of the designated sites.

2. To qualitatively locate and characterize any the visible and non-visible components of a plume, as well as any areas on fire:
 - Using the Infrared Line Scanner (IRLS)
3. To screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library:
 - Using the Fourier Transform Infrared (FTIR) Spectrometer

Flight Conditions and Status

Weather and Site Conditions

Prior to each flight, an updated status of the current and forecasted weather, site conditions and any potential flight obstacles including radio towers impacting safety is assessed by the crew. A complete timeline of the ground weather conditions during the two missions can be found in Tables 1, 2, and 3.

Table 1. Ground Weather for XX, LA

Time	751	851	951
Wind direction	90 degrees E	135 degrees SE	135 degrees SE
Wind speed	3.6 m/s (8.0 mph)	5.4 m/s (12.0 mph)	4.5 m/s (10.0 mph)
Temperature	15.0 C	18.9 C	20.0 C
Relative humidity	90%	75%	70%
Dew point	13.3 C	14.4 C	14.4 C
Pressure	1020.4 mb	1020.8 mb	1021 mb
Ceiling	Few 20000 Ft	Few 2700 Ft	Few 3000 Ft

Table 2. Ground Weather for XX, LA

Time	950	1050	1150	1250
Wind direction	90 degrees E	90 degrees E	135 degrees SE	90 degrees E
Wind speed	2.2 m/s (5.0 mph)	5.4 m/s (12.0 mph)	4.0 m/s (9.0 mph)	7.2 m/s (16.0 mph)
Temperature	16.1 C	17.8 C	18.9 C	18.9 C
Relative humidity	68%	88%	43%	40%
Dew point	10.0 C	16.1 C	6.1 C	5.0 C
Pressure	1022.7 mb	1022 mb	1021.7 mb	1020.3 mb
Ceiling	Clear	Clear	Clear	Clear

Aerial Photography Results

A full set of high-resolution aerial digital photography were collected as part of each data collection pass. Weather conditions over the Beaumont and Houston areas allowed high

quality aerial images to be collected. Figures X and X show representative overhead and oblique images of operating facilities imaged on Flight X.

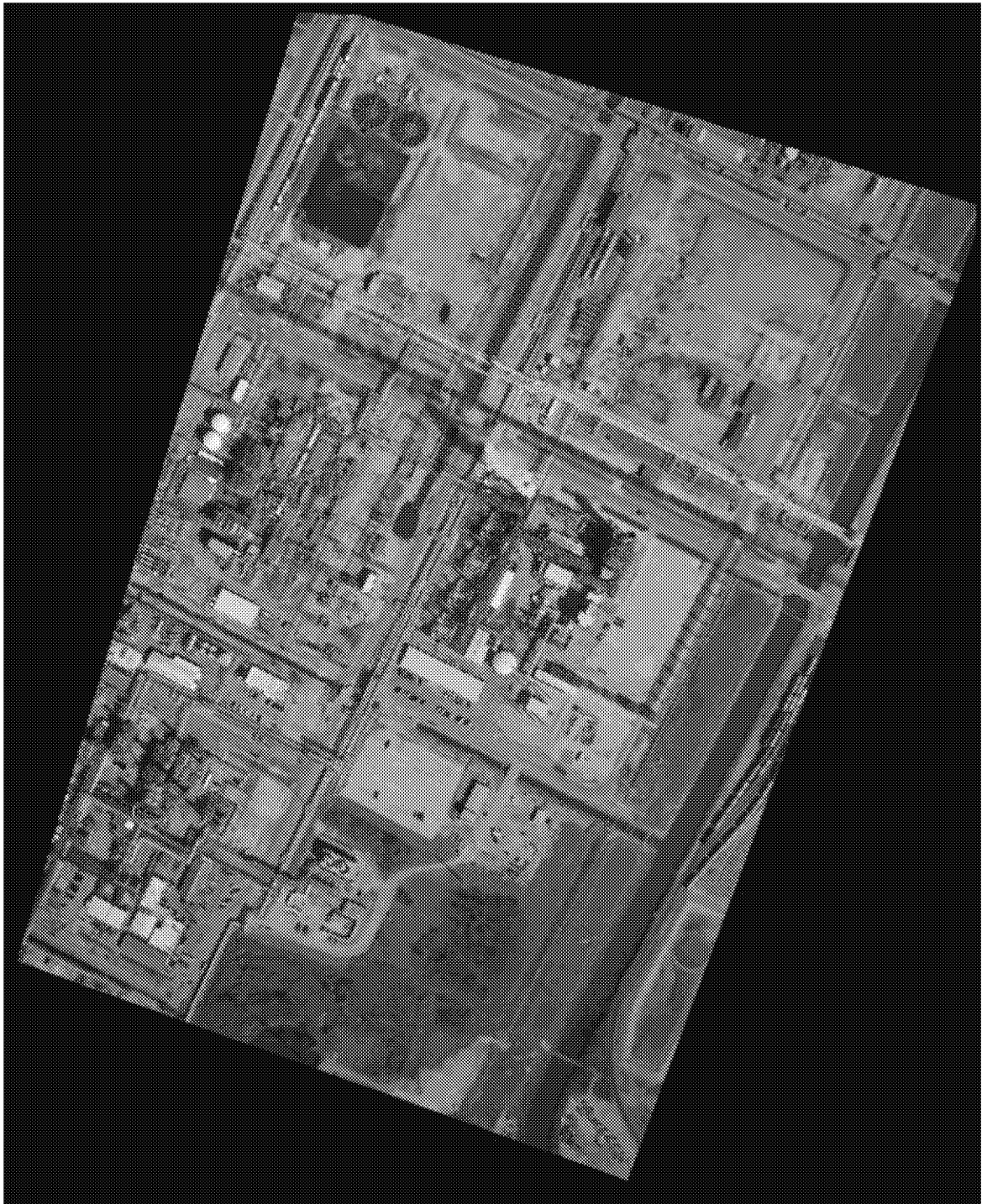


Figure XX. MSIC Aerial Image, XXX, Flight x

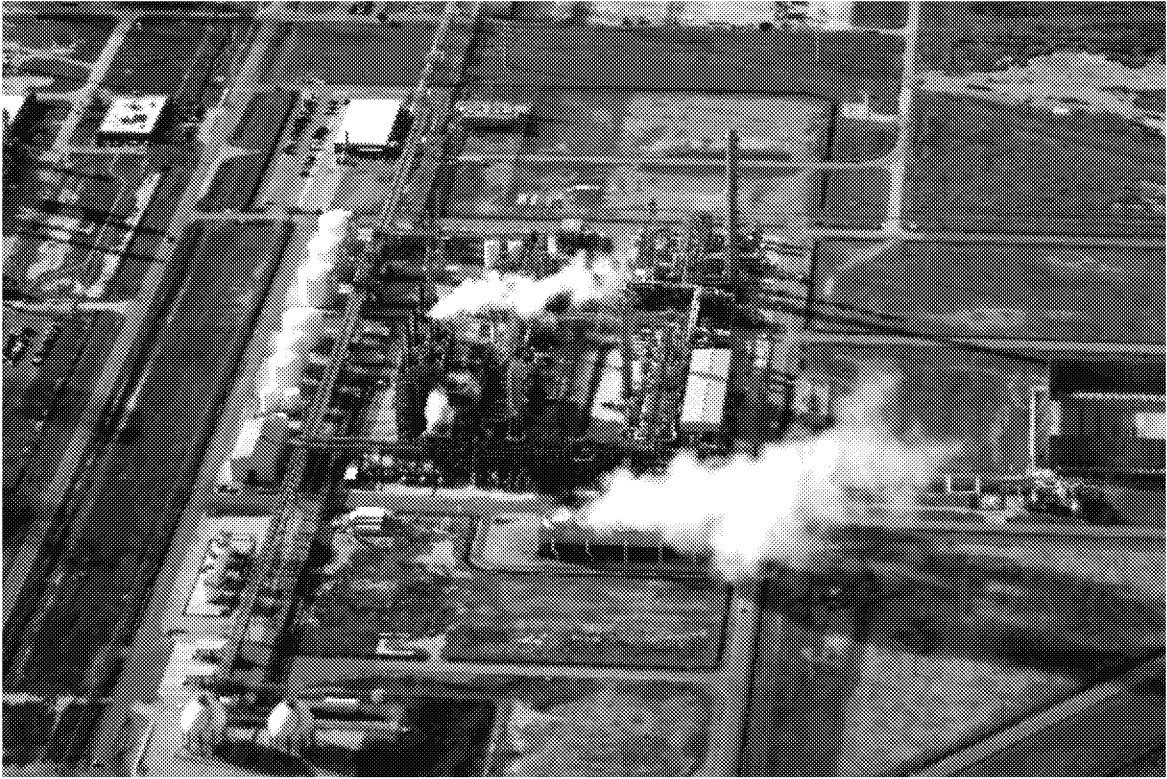


Figure X. Oblique Image, Fight X.

Conclusion

Appendix A: File Names of Data Collected During Flight
Corpus Christi, Freeport, and Houston Areas, Flight 8, 4 March 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	14:33:50	2858	109	20210304143356631.jpg 20210304143402980.jpg 20210304143409345.jpg	20210304_143353_A.igm	021_03_04_14_33_54_R_01 TA=14.0;TB=34.7;Gain=3	
2	14:53:28	2853	111	0210304145334181.jpg 20210304145340531.jpg	20210304_145331_A.igm	2021_03_04_14_53_33_R_02 TA=10.9;TB=30.9;Gain=3	
3	15:00:34	2901	110	20210304150040902.jpg 20210304150047251.jpg 20210304150053601.jpg 20210304150059965.jpg 20210304150106315.jpg 20210304150112665.jpg 20210304150119030.jpg 20210304150125379.jpg 20210304150131744.jpg	20210304_150038_A.igm 20210304_150117_A.igm	2021_03_04_15_00_39_R_03 TA=12.6;TB=32.5;Gain=3	
4	15:12:24	2847	108	20210304151229971.jpg 20210304151236320.jpg 20210304151243590.jpg 20210304151249939.jpg 20210304151256304.jpg 20210304151302653.jpg 20210304151304478.jpg	20210304_151228_A.igm	2021_03_04_15_12_29_R_04 TA=14.7;TB=35.0;Gain=3	
5	15:22:52	2838	109	20210304152258246.jpg 20210304152305500.jpg 20210304152311865.jpg 20210304152318214.jpg 20210304152324564.jpg 20210304152330928.jpg	20210304_152255_A.igm	2021_03_04_15_22_57_R_05 TA=15.2;TB=35.2;Gain=3	
6	16:15:44	2792	112	20210304161550465.jpg 20210304161557719.jpg 20210304161604084.jpg 20210304161610433.jpg 20210304161616798.jpg 20210304161623147.jpg	20210304_161548_A.igm	2021_03_04_16_15_49_R_06 TA=13.9;TB=33.6;Gain=3	
7	16:25:52	2759	111	20210304162557852.jpg 20210304162605122.jpg 20210304162611471.jpg 20210304162617820.jpg 20210304162624185.jpg 20210304162630534.jpg	20210304_162556_A.igm	2021_03_04_16_25_57_R_07 TA=15.5;TB=34.6;Gain=3	
8	16:33:40	2810	110	20210304163346321.jpg 20210304163352686.jpg 20210304163359035.jpg 20210304163405400.jpg 20210304163411749.jpg 20210304163419019.jpg 20210304163421733.jpg	20210304_163343_A.igm	2021_03_04_16_33_45_R_08 TA=15.8;TB=36.0;Gain=3	
9	16:44:38	2749	111	20210304164443660.jpg 20210304164450009.jpg 20210304164456358.jpg 20210304164503628.jpg 20210304164509977.jpg	20210304_164440_A.igm	2021_03_04_16_44_43_R_09 TA=8.3;TB=28.6;Gain=3	
10	16:49:51	2790	112	20210304164957782.jpg 20210304165004147.jpg 20210304165010496.jpg 20210304165016861.jpg 20210304165023210.jpg	20210304_164955_A.igm	2021_03_04_16_49_56_R_10 TA=15.6;TB=35.5;Gain=3	
11	17:00:46	2767	112	20210304170052390.jpg 20210304170058740.jpg 20210304170105104.jpg	20210304_170049_A.igm	2021_03_04_17_00_51_R_11 TA=16.8;TB=36.7;Gain=3	
12	17:10:06	2755	111	20210304171012572.jpg 20210304171018921.jpg 20210304171025270.jpg	20210304_171009_A.igm	2021_03_04_17_10_11_R_12 TA=10.2;TB=30.3;Gain=3	

				20210304171031635.jpg 20210304171037984.jpg 20210304171044349.jpg			
13	17:25:34	2803	112	20210304172540442.jpg 20210304172546807.jpg 20210304172553156.jpg 20210304172559505.jpg 20210304172605870.jpg 20210304172612219.jpg	20210304_172537_A.igm	2021_03_04_17_25_39_R_13 TA=18.8;TB=38.7;Gain=3	
14	17:35:12	2791	112	20210304173517877.jpg 20210304173524226.jpg 20210304173530576.jpg 20210304173536940.jpg	20210304_173515_A.igm	2021_03_04_17_35_17_R_14 TA=20.2;TB=40.2;Gain=3	
15	17:41:47	2816	106	20210304174153727.jpg 20210304174200076.jpg 20210304174206426.jpg 20210304174212790.jpg 20210304174219140.jpg 20210304174225489.jpg	20210304_174149_A.igm	2021_03_04_17_41_52_R_15 TA=19.7;TB=39.8;Gain=3	
16	17:48:17	2788	117	20210304174823213.jpg 20210304174830483.jpg 20210304174836832.jpg 20210304174843181.jpg 20210304174849546.jpg 20210304174855895.jpg	20210304_174820_A.igm	2021_03_04_17_48_23_R_16 TA=21.3;TB=41.4;Gain=3	
17	17:57:47	2796	111	20210304175753379.jpg 20210304175759728.jpg 20210304175806093.jpg 20210304175812442.jpg 20210304175818791.jpg 20210304175825156.jpg	20210304_175749_A.igm	2021_03_04_17_57_52_R_17 TA=21.2;TB=41.2;Gain=3	
18	18:03:07	2793	107	20210304180313866.jpg 20210304180320215.jpg 20210304180326580.jpg 20210304180332929.jpg 20210304180339294.jpg 20210304180342009.jpg	20210304_180310_A.igm	2021_03_04_18_03_13_R_18 TA=21.6;TB=41.4;Gain=3	

Beaumont Area, Flight 9, 4 March 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	22:24:33	2783	112	20210304222439859.jpg 20210304222446208.jpg 20210304222452573.jpg	20210304_222436_A.igm	2021_03_04_22_24_38_R_01 TA=17.0;TB=36.8;Gain=3	
2	22:37:03	2792	112	20210304223709774.jpg 20210304223716138.jpg 20210304223722488.jpg 20210304223728837.jpg 20210304223735201.jpg	20210304_223707_A.igm	2021_03_04_22_37_08_R_02 TA=11.1;TB=31.1;Gain=3	
3	22:45:27	2786	110	20210304224533663.jpg 20210304224540012.jpg 20210304224546377.jpg 20210304224552726.jpg 20210304224559075.jpg	20210304_224531_A.igm	2021_03_04_22_45_32_R_03 TA=12.6;TB=32.8;Gain=3	
4	23:01:17	2772	111	20210304230123321.jpg 20210304230129671.jpg 20210304230136035.jpg 20210304230142384.jpg 20210304230148749.jpg 20210304230155098.jpg	20210304_230121_A.igm	2021_03_04_23_01_22_R_04 TA=13.8;TB=33.7;Gain=3	
5	23:09:05	2764	110	20210304230911805.jpg 20210304230918154.jpg 20210304230924503.jpg 20210304230930868.jpg	20210304_230908_A.igm	2021_03_04_23_09_10_R_05 TA=13.1;TB=33.2;Gain=3	

6	23:17:59	2786	111	20210304231806554.jpg 20210304231812903.jpg 20210304231819267.jpg 20210304231825617.jpg 20210304231831981.jpg	20210304_231803_A.igm	2021_03_04_23_18_04_R_06 TA=11.8;TB=31.8;Gain=3	
7	23:27:54	2787	110	20210304232800326.jpg 20210304232806676.jpg 20210304232813025.jpg 20210304232819390.jpg 20210304232825739.jpg 20210304232833009.jpg 20210304232837549.jpg	20210304_232758_A.igm	2021_03_04_23_27_59_R_07 TA=9.8;TB=29.9;Gain=3	
8	23:35:38	2797	109	20210304233543351.jpg 20210304233550621.jpg 20210304233556970.jpg 20210304233603319.jpg 20210304233609684.jpg 20210304233616033.jpg 20210304233622398.jpg 20210304233628747.jpg 20210304233635096.jpg	20210304_233541_A.igm 20210304_233620_A.igm	2021_03_04_23_35_43_R_08 TA=9.5;TB=29.3;Gain=3	
9	23:43:38	2840	110	20210304234343631.jpg 20210304234350900.jpg 20210304234357249.jpg 20210304234403614.jpg 20210304234409963.jpg 20210304234416313.jpg	20210304_234341_A.igm	2021_03_04_23_43_43_R_09 TA=8.6;TB=29.3;Gain=3	

Appendix B: ASPECT Systems

The US EPA ASPECT system collects airborne infrared (IR) images and chemical screening data from a safe distance over the site (about 3,000 ft AGL). The system consists of an airborne high-speed Fourier Transform Infra-Red (FTIR) spectrometer coupled with a wide-area IR Line Scanner (IRLS). The ASPECT IR systems can detect chemical compounds in both the 8-to-12-micron (800 to 1200 cm^{-1}) and 3 to 5 micron (2000 to 3200 cm^{-1}) regions. List of chemicals and detection limits are listed in Table 1. The 8 to 12 micron region is typically known as the atmospheric window region since the band is reasonably void of water and carbon dioxide influence. Spectrally, this region is used to detect carbon - non-carbon bonded compounds. The 3 to 5 micron region is also free of water and carbon dioxide but typically does not have sufficient energy for use. This band does show use in high-energy environments such as fires. The carbon - hydrogen stretch is very common in this region.

An Imperx mapping camera (29 mega pixels; mapping focal plane array) is concurrently operated as part of all chemical collections. These images are often digitally processed in lower resolution, so they can be transmitted via satellite communication. All imagery is geo-rectified using both aircraft attitude correction (pitch, yaw, and roll) and GPS positional information. Imagery can be processed while in flight or approximately 600 frames per hour can be processed once the data are downloaded from the aircraft. The high-resolution images (>20 MB each) are pulled from the ASPECT after the sortie and are available later.

All aerial photographic images collected by the ASPECT system are ortho-rectified and geospatially validated by the scientific reach back team. In general, this consists of conducting geo-registration using a USGS Digital Elevation Model (DEM) which promotes superior pixel computation and lessens topographic distortion. The image is checked by the team (using a Google Earth base map) for proper location and rotation.

Airborne radiological measurements are conducted using three fully integrated multi-crystal sodium iodide (NaI) RSX4 gamma ray spectrometers. Each RSX4 spectrometer contains four 4"x2"x16" doped NaI crystals each having an independent photomultiplier/spectrometer assembly. One RSX unit is configured with an additional upward NaI crystal utilized to provide real-time cosmic ray correction. Count and energy data from each crystal and pack is combined using a self-calibrating signal processor to generate a virtual detector output. All radiological spectrometer "packs" are further combined using a signal console controlled by the on-board central computer in the aircraft. Altitude correction data is provided by a radar altimeter with internal GPS systems within the packs serving as a backup. It should be noted that no radiological measurements were conducted on this mission.

Data is processed using automated algorithms onboard the aircraft with preliminary results being sent using a satellite system to the ASPECT scientific reach back team for QA/QC analysis. Upon landing, preliminary data results are examined and validated by the

scientific reach back team.

Table 1. ASPECT Automated Compounds

This table contains ASPECT's library of automated compounds.

Detection limits are for each chemical is found in parenthesis in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/4/2021 3:47:29 AM
To: Turville Rick [Rick.Turville@kalmancoinc.com]; mark [mark@spectralsystemsglobal.com]
Subject: Draft 02 Sept Report
Attachments: ASPECT Summary - Hurricane Ida 2 September 2021.docx

There's not much in it, but just wanted to give you guys a record of the report for 02 Sept.

Thanks!
Jill

Jill Taylor
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Airborne Spectral Photometric Environmental Collection Technology

ASPECT Air Quality Survey Baton Rouge, LA. 2 September 2021



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Acronyms and Abbreviations

Alt	Altitude (in feet)
AGL	Above Ground Level
cm	centimeter
CST	Central Standard Time
DEM	Digital Elevation Model
Digital	Digital photography file from the Nikon D2X camera
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
igm	Spectral data format based on grams format
IR	Infrared
IRLS	Infrared Line Scanner
jpg	JPEG image format
kts	knots
mph	miles per hour
m/s	meters per second
MSIC	Digital photography file from the Imperx mapping camera
MSL	Mean Sea Level Altitude (in feet)
ppm	parts per million
UTC	Universal Time Coordinated

Executive Summary

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On September 2nd, 2021, the State of Louisiana requested ESF-10 assistance through FEMA and Region 6 asked for the ASPECT plane to be deployed in support of the response to Hurricane Ida. The state wanted assistance monitoring facility emissions in the industrial area between Baton Rouge and New Orleans, where flaring is resulting in the visible emission of black smoke.

ASPECT was tasked to perform remote chemical sensing over target properties to screen for airborne chemicals and take high-resolution photos to provide situational awareness. Potential areas identified for monitoring included: East Baton Rouge, Ascension, Iberville, St. James, St. John, St. Charles, Jefferson, and Orleans.

To support the Hurricane Ida response effort a total of 11 data collection runs (3 tests and 8 site passes) were made. Weather was conducive to successful data collection. Winds were light and predominantly from the West. Some scattered storms formed near Baton Rouge in the late afternoon that were routed around en route to the airport.

ASPECT Air Quality Survey

Hurricane IDA

Baton Rouge, LA

2 September 2021

Background and Operational Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library in the areas affected by Ida. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected.

After collecting two data sets over the Marathon Petroleum Company, the plane returned to the West side of the Shell Norco Facility and collected data there. Next, the plane headed to the Phillips 66 pipeline site. The ground crew provided two coordinates to the flight crew with instructions to fly from south to north between the two points. The first point started at the coordinate provided by Region 6, and the second point was chosen along a linear clearing which was presumed to be an indication of where the pipeline was buried. Just north of this site was one of the LDEQ priority sites, the Union Carbide Corp. Because it was so close, the flight crew was instructed to collect data there as well before flying to Baton Rouge to refuel and upload data. All sites surveyed are shown in Table 1.

There were no chemical detections at the sites surveyed. Extremely slow satellite transmission speeds (possibly due to high bandwidth use by other first responders) resulted in long delays in data collection. Some chemical photos were pulled down during flight, with the majority needing to be pulled down with a more high-speed internet connection on the ground. Unfortunately, when attempting to process the data on the ground, the computer crashed multiple times, resulting in the decision to return to home

base in Addison, TX to switch to a backup computer. The mission will resume on 03 September.

Table 1. Sites Covered on 02 September 2021 Flight

Facility	Lat	Lon
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.4097
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.5935
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.4224
PHILLIPS 66 PIPELINE LLC	29.923889	-90.4825
Union Carbide Corp - St. Charles Plant	29.982289	-90.4556

General Mission Objectives

Once granted access to fly over the sites, the following general mission objectives were employed in conducting data collection with ASPECT:

1. To capture an overall, situational awareness of the incident using aerial photography with:
 - Oblique camera—photos taken by hand from the view/position of the co-pilot, and
 - MSIC photos—advanced camera mounted underneath the plane for a top-down view of the designated sites.
2. To qualitatively locate and characterize any the visible and non-visible components of a plume, as well as any areas on fire:
 - Using the Infrared Line Scanner (IRLS)
3. To screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library:
 - Using the Fourier Transform Infrared (FTIR) Spectrometer

Flight Conditions and Status

Weather and Site Conditions

Prior to each flight, an updated status of the current and forecasted weather, site conditions and any potential flight obstacles including radio towers impacting safety is assessed by the crew. A summary of the ground weather conditions during the missions can be found in Table 2.

Table 2. Ground Weather for New Orleans, LA

Time (CDT)	1400	1500	1600	1700
Wind direction	360 degrees N	335 degrees NW	90 degrees E	180 degrees S
Wind speed	3.1 m/s (6.9 mph)	1.5 m/s (3.3 mph)	1.5 m/s (3.3 mph)	3.1 m/s (6.9 mph)
Temperature	32.0 C	33.0 C	33.0 C	33.0 C
Relative humidity	59%	56%	56%	59%
Dew point	23.0 C	23.0 C	23.0 C	24.0 C
Pressure	1013.44 mb	1012.43 mb	1011.41 mb	1011.41 mb
Ceiling	Mostly Clear	Mostly Clear	Clear	Clear

Aerial Photography Results

A full set of high-resolution aerial digital photography were collected as part of each data collection pass. Weather conditions over the New Orleans area allowed high quality aerial images to be collected. Figures 1 and 2 show representative overhead and oblique images of the Marathon Petroleum Company imaged on Flight 1.

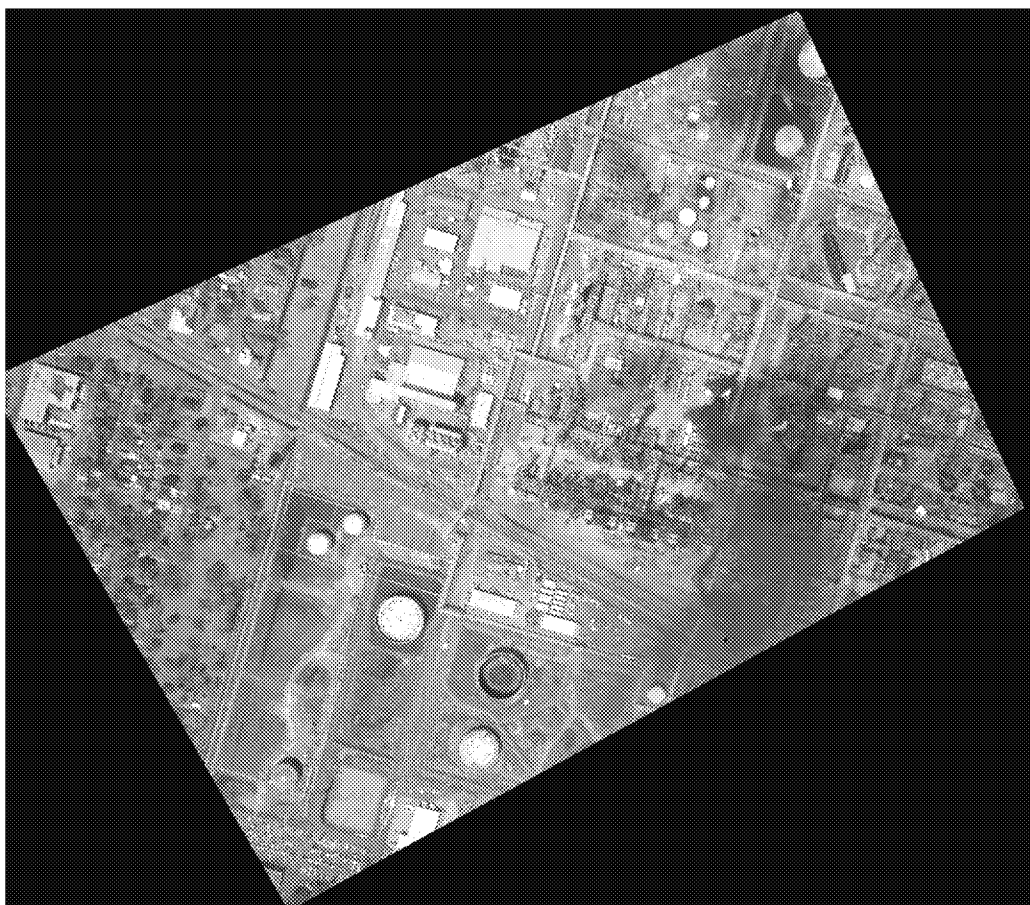


Figure 1. MSIC photo taken over the Marathon Petroleum Facility in Garyville, LA on 02 September 2021



Figure 2. Oblique photo taken over the Marathon Petroleum Facility in Garyville, LA on 02 September 2021

Conclusion

ASPECT conducted one flight mission on 2 September 2021 including air monitoring survey collections over the New Orleans area. Weather conditions were favorable for all types of data collection. Although two black plumes were visible over one of the sites, no major emissions were detected with the FTIR.

**Appendix A: Priority Sites Provided by EPA Region 6 & Louisiana Department of
Environmental Quality**

Facility_Name	Latitude	Logitude	Parish
Deltech LLC - Baton Rouge Facility	30.552892	-91.200536	East Baton Rouge
ExxonMobil Chemical Co - Baton Rouge Plastics Plant	30.551419	-91.175611	East Baton Rouge
ExxonMobil Baton Rouge Chemical Plant	30.484336	-91.169644	East Baton Rouge
Marathon Petroleum Co LP	30.068394	-90.596364	St. John the Baptist
Westlake Vinyls Co LP	30.209167	-91.017222	Ascension
Valero Refining - Meraux LLC - Meraux Refinery	29.930222	-89.944917	St. Bernard
Cornerstone Chemical Company	29.964722	-90.264722	Jefferson
Chalmette Refining LLC	29.937903	-89.969903	St. Bernard
ExxonMobil Chemical Company - Baton Rouge Chemicals North Plant	30.50465	-91.173219	East Baton Rouge
Equilon Enterprises LLC - Norco Refinery	29.995372	-90.410167	St. Charles
The Dow Chemical Company - Louisiana Operations	30.313927	-91.240586	Iberville
Rubicon LLC - Geismar Facility	30.20139	-91.01222	Ascension
BASF Corp - Geismar Site	30.18425	-91.002778	Ascension
Union Carbide Corp - St. Charles Plant	29.982289	-90.455622	St. Charles
Phillips 66 Co - Alliance Refinery	29.68406	-89.98145	Plaquemines
Axiall LLC - Plaquemine Facility	30.267167	-91.184258	Iberville
ExxonMobil Fuels & Lubricants Co - Baton Rouge Refinery	30.484392	-91.169444	East Baton Rouge
Equilon Enterprises LLC dba Shell Oil Products US - Convent Refinery	30.107684	-90.890796	St. James
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.593528	St. John the Baptist
BASF Corp - Zachary Site	29.547603	-90.523231	East Baton Rouge
Occidental Chemical Corporation - Geismar Facility	30.18819	-90.98188	Ascension
St Rose Refinery LLC - St Rose Refinery	29.950875	-90.328497	St. Charles
ExxonMobil Chemical Co - Baton Rouge Polyolefins Plant	30.56215	-91.20387	East Baton Rouge
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.422381	St. Charles
NOVA Chemicals Olefins LLC - Geismar Ethylene Plant	30.230619	-91.052884	Ascension
Roehm America LLC - MMA Plant	29.9575	-90.265833	Jefferson
Valero Refining - New Orleans LLC - St Charles Refinery	29.985781	-90.3955	St. Charles
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.409722	St. Charles
BASF Corp - North Geismar Site	30.20594	-90.99195	Ascension
Stolthaven New Orleans, LLC - Braithwaite Facility	29.870919	-89.949339	Plaquemines
Shintech Louisiana LLC - Shintech Plaquemine Plant	30.273611	-91.173333	Iberville
Denka Performance Elastomer LLC	30.053928	-90.524792	St. John the Baptist

Formosa Plastics Corp Louisiana	30.501722	-91.185944	East Baton Rouge
DuPont Specialty Products USA LLC - Pontchartrain Site	30.05388	-90.52472	St. John the Baptist
Occidental Chemical Corp - Taft Plant	29.987222	-90.454722	St. Charles
Syngenta Crop Protection LLC - St Gabriel Plant	30.246728	-91.103508	Iberville
Mosaic Fertilizer LLC - Faustina Plant	30.083914	-90.91345	St. James
Mosaic Fertilizer LLC - Uncle Sam Plant	30.037222	-90.8275	St. James
LBC Baton Rouge LLC - Sunshine Terminal	30.294444	-91.148333	Iberville
Occidental Chemical Corporation - Convent Facility	30.055885	-90.830594	St. James
TOTAL Petrochemicals & Refining USA Inc - Carville Polystyrene Plant	30.229786	-91.073631	Iberville
Targa Midstream Services LLC	29.237034	-89.384977	Plaquemines
EnLink LIG Liquids LLC - Plaquemine Gas Processing Plant	30.236389	-91.241389	Iberville
EnLink LIG Liquids LLC - Gibson Gas Processing Plant	29.643056	-90.961944	Terrebonne
NuStar Logistics LP - St James Terminal	30.030065	-90.843463	St. James
Enterprise Gas Processing LLC - Norco Fractionation Plant	30.015411	-90.402958	St. Charles
Lone Star NGL Refinery Services LLC - Geismar Fractionation Plant	30.218889	-91.035833	Ascension
INEOS Oxide - A Division of INEOS Americas LLC	30.313889	-91.240278	Iberville
Discovery Producer Services LLC - Discovery Paradis Fractionation Plant	29.858889	-90.453333	St. Charles
Plains Marketing LP - St James Terminal	30.004341	-90.848449	St. James
Methanex USA Services LLC - Geismar Methanol Plant	30.206667	-91.020833	Ascension
Dyno Nobel LA Ammonia LLC - Ammonia Production Facility	29.964789	-90.264625	Jefferson
Kinder Morgan Liquids Terminals LLC - Geismar Methanol Terminal	30.205389	-91.023792	Ascension
South LA Methanol LP - St James Methanol Plant	30.039917	-90.863819	St. James
YCI Methanol Plant	29.97481	-90.86775	St. James
IGP Methanol LLC - Gulf Coast Methanol Complex	29.625453	-89.926611	Plaquemines
KMe St James Holdings LLC - Methanol Terminal	29.990919	-90.841239	St. James
Kemira Chemicals Inc	29.964722	-90.264722	Jefferson
PHILLIPS 66 PIPELINE LLC	29.923889	-90.482498	St. Charles
CF INDUSTRIES	30.08328	-90.957665	Ascension

Appendix B: ASPECT Systems

The US EPA ASPECT system collects airborne infrared (IR) images and chemical screening data from a safe distance over the site (about 3,000 ft AGL). The system

consists of an airborne high-speed Fourier Transform Infra-Red (FTIR) spectrometer coupled with a wide-area IR Line Scanner (IRLS). The ASPECT IR systems can detect chemical compounds in both the 8-to-12-micron (800 to 1200 cm^{-1}) and 3 to 5 micron (2000 to 3200 cm^{-1}) regions. List of chemicals and detection limits are listed in Table 1. The 8 to 12 micron region is typically known as the atmospheric window region since the band is reasonably void of water and carbon dioxide influence. Spectrally, this region is used to detect carbon - non-carbon bonded compounds. The 3 to 5 micron region is also free of water and carbon dioxide but typically does not have sufficient energy for use. This band does show use in high-energy environments such as fires. The carbon - hydrogen stretch is very common in this region.

An Imperx mapping camera (29 mega pixels; mapping focal plane array) is concurrently operated as part of all chemical collections. These images are often digitally processed in lower resolution, so they can be transmitted via satellite communication. All imagery is geo-rectified using both aircraft attitude correction (pitch, yaw, and roll) and GPS positional information. Imagery can be processed while in flight or approximately 600 frames per hour can be processed once the data are downloaded from the aircraft. The high-resolution images (>20 MB each) are pulled from the ASPECT after the sortie and are available later.

All aerial photographic images collected by the ASPECT system are ortho-rectified and geospatially validated by the scientific reach back team. In general, this consists of conducting geo-registration using a USGS Digital Elevation Model (DEM) which promotes superior pixel computation and lessens topographic distortion. The image is checked by the team (using a Google Earth base map) for proper location and rotation.

Airborne radiological measurements are conducted using three fully integrated multi-crystal sodium iodide (NaI) RSX4 gamma ray spectrometers. Each RSX4 spectrometer contains four 4"x2"x16" doped NaI crystals each having an independent photomultiplier/spectrometer assembly. One RSX unit is configured with an additional upward NaI crystal utilized to provide real-time cosmic ray correction. Count and energy data from each crystal and pack is combined using a self-calibrating signal processor to generate a virtual detector output. All radiological spectrometer "packs" are further combined using a signal console controlled by the on-board central computer in the aircraft. Altitude correction data is provided by a radar altimeter with internal GPS systems within the packs serving as a backup. It should be noted that no radiological measurements were conducted on this mission.

Data is processed using automated algorithms onboard the aircraft with preliminary results being sent using a satellite system to the ASPECT scientific reach back team for QA/QC analysis. Upon landing, preliminary data results are examined and validated by the scientific reach back team.

Table 1. ASPECT Automated Compounds

This table contains ASPECT's library of automated compounds.

Detection limits are for each chemical is found in parenthesis in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/4/2021 4:02:06 AM
To: Roff, Nicholas [Roff.Nicholas@epa.gov]
Subject: FW: ASPECT Report from 02Sept and Plan for 04Sept
Attachments: ASPECT Priority List 04Sept21.xlsx; FEMA_20210904_EPA_Ida_Response.pptx; ASPECT Summary - Hurricane Ida 02Sep21_Draft.docx

Sorry, Nick, I forgot that you were taking over for Anish this weekend. I'll add you to the next distro list.

From: Taylor, Jillianne
Sent: Friday, September 3, 2021 11:00 PM
To: Delgado, Eric <Delgado.Eric@epa.gov>; Moore, Gary <moore.gary@epa.gov>; Patel, Anish <patel.anish@epa.gov>; Loesel, Matthew <loesel.matthew@epa.gov>; brian.fontenot@la.gov; daniel.lambert@la.gov; karen.price2@la.gov; Shaikh, Taimur <Shaikh.Taimur@epa.gov>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Subject: ASPECT Report from 02Sept and Plan for 04Sept

Hello everyone,

The flight crew is in Beaumont for the night. We plan to have a pre-flight brief at 8:00 AM CDT tomorrow, with a target takeoff time of 8:30 AM CDT. The data from this morning's flight is up on the FTP site that I provided you with earlier. The data from the afternoon is still uploading, we will have that ready for you in the morning. I will talk to our technical contractors tomorrow morning about making sure that the oblique photos are geotagged.

I've attached the priority list for our mission tomorrow (there is also a tab showing the sites that were flown today), a map of the sites that we have flown and what we have left to cover (ppt file), and the draft report from yesterday's mission (please thank Ms. Subra in advance for me for her review!).

Please let me know if there is any other information that we can provide you with.

Thank you!
Jill

Jill Taylor
Atmospheric Scientist, ASPECT
CBRN Consequence Management Advisory Division
Environmental Protection Agency
1201 Elm St., Dallas, TX 75270
Work Cell: 214-406-9896

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/4/2021 5:27:26 PM
To: Turville Rick [Rick.Turville@kalmancoinc.com]; mark [mark@spectralsystemsglobal.com]
Subject: FW: ASPECT Report for September 2, 2021
Attachments: ASPECT Summary - Hurricane Ida 02Sep21_Draft XA edits.docx

FYSA – minor edits from the R6 PA. Looks like it is mostly just preferred formatting for the dates.

From: Loesel, Matthew <loesel.matthew@epa.gov>
Sent: Saturday, September 4, 2021 12:14 PM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Cc: Roff, Nicholas <Roff.Nicholas@epa.gov>
Subject: Fwd: ASPECT Report for September 2, 2021

Sent from my iPhone

Begin forwarded message:

From: "Assunto, Carmen" <Assunto.Carmen@epa.gov>
Date: September 4, 2021 at 12:11:06 PM CDT
To: "Loesel, Matthew" <loesel.matthew@epa.gov>
Cc: "Roff, Nicholas" <Roff.Nicholas@epa.gov>, HQ EOC Public Information Officer <HQ_PIO@epa.gov>, "Acevedo, Janie" <Acevedo.Janie@epa.gov>
Subject: RE: ASPECT Report for September 2, 2021

Here are our edits. Thank you, Carmen

From: Loesel, Matthew <loesel.matthew@epa.gov>
Sent: Saturday, September 4, 2021 7:51 AM
To: Assunto, Carmen <Assunto.Carmen@epa.gov>
Cc: Roff, Nicholas <Roff.Nicholas@epa.gov>
Subject: ASPECT Report for September 2, 2021

For your review, this is also still being reviewed by our third party as well.

Matthew Loesel
U.S. EPA - Federal On-Scene Coordinator
1201 Elm Street
Suite 500 (65ED-EC)
Dallas, Texas 75270
(214) 738 0674 (mobile)
(214) 665 8544 (office)
loesel.matthew@epa.gov

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/4/2021 2:07:37 PM
To: Argenta, Edward [Argenta.Edward@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Subject: FW: QAPP
Attachments: QAPP-ASPECT- Hurricane IDA Sept 2021.docx

Beginnings of a QAPP. Rick said he can pull some stuff from the report to fill it out more

From: Turville Rick <Rick.Turville@kalmancoinc.com>
Sent: Saturday, September 4, 2021 6:12 AM
To: Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Cc: mark <mark@spectralsystemsglobal.com>
Subject: QAPP

Jill,

Attached is a draft QAPP. However, the EPA Organization personnel needs to be updated. A signature page and the planned Target List and locations need to be inserted. But, it's a start.

R/ Rick

Rick Turville
Kalman and Company, Inc.
1000 Corporate Center, Suite 301
Stafford, VA 22554
540-628-7325 - Office
757-353-8302 - Cell

Airborne
Spectral
Photometric
Environmental
Collection
Technology

2 September 2021

UFP-QAPP

Uniformed Federal Policy for
Quality Assurance Project Plans



ASPECT Air Quality Survey Hurricane IDA

Jill Taylor

OEM / CMAD
Chemical/Photometric Lead
[[HYPERLINK
"mailto:Taylor.Jillianne@EPA.g
ov"](mailto:Taylor.Jillianne@EPA.gov)]
214-406-9896

Division Location:
Consequence Management Advisory Division

William Jefferson Clinton Building North 1200
Pennsylvania Avenue, N.W Washington, DC
20460

Physical
Location:
US EPA
Region 6
Renaissa
nce
Tower
1201 Elm
Street, 3rd
Floor
Dallas,
Texas

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Acronyms, Abbreviations, and Definitions

AGL	Above Ground Level
ASPECT	Airborne Spectral Photometric Environmental Collection Technology
CMAD	Consequence Management Advisory Division, division within Office of Emergency Management
Flight #	Designates when a new flight has begun during the mission. Every time data is uploaded from the plane to the ground crew, a new flight number is given. This usually occurs at the end of the day—the next morning would have a new flight number—or mid-day when the plane is waiting for inclement weather to pass. The first flight number for the first flight of the mission is always #1 and increment after data has been uploaded.
FOB	Field Operations Branch, a branch within CMAD Division within the Office of Emergency Management
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
FTP	File Transfer Protocol
IR	Infrared
IRLS	Infrared Line Scanner
Line #	Specific numbering system that corresponds to specific gps coordinates. Line numbers are assigned before the beginning of the first flight on the first day. Each line number can have multiple source names (e.g. facility names) within the line number—usually when facilities are close in a proximity to each other.
mph	miles per hour
MSIC	Digital photography file from the Imperx mapping camera
OEM	Office of Emergency Management
Pass #	Corresponds to the number of “passes” over the designated line. Each line could have multiple passes to capture the data. Example of factors affecting data during a run where another pass is warranted include clouds appearing under the plane, turbulence, gust of wind, inclement weather, etc.
ppm	parts per million
QAPP	Quality Assurance Project Plan
Run #	Numbering system for when the plane has flown over a line in chronological order for the day. For each flight the run number starts over with number “1” for each day or when the plane lands. Run numbers can be test flights, the initial run (i.e. Pass #1), or a re-pass of a line (i.e. Pass #2, #3, etc.)
RMD	Resources Management Division, division within the Office of Emergency Management
UFP-QAPP	Uniformed Federal Policy for Quality Assurance Project Plan

Introduction

Site Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

A variety of instruments on the ASPECT platform are used in providing situational awareness to the supported Region. These instruments can also identify and characterize both visible and non-visible plumes using an Infrared Line Scanner (IRLS). For more detailed chemical analysis, the Fourier Transform Infrared (FTIR) spectrometer is used to screen for the presence, location, and concentration of specific chemicals within ASPECT's automated 76 chemical detection library (Worksheet #15 outlines the various chemicals that can be detected using the FTIR spectrometer). In addition chemical sensing, the ASPECT plane can provide aerial photography using an oblique camera for taking photos from the view and position of the crew on the ASPECT plane, and a high speed photometric camera for taking high-resolution geo-rectified aerial photos from the bottom of the plane. Oblique and high-resolution cameras, the IRLS, and the FTIR will be used during the air quality screening flights for the Hurricane IDA mission.

Site Description, History & Background

The ASPECT aircraft was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library were detected in the areas between Beaumont, Houston, and Corpus Christi Texas. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected.

The map of the target facilities in the XXXX area designated for survey can be seen in Figure 1 below.

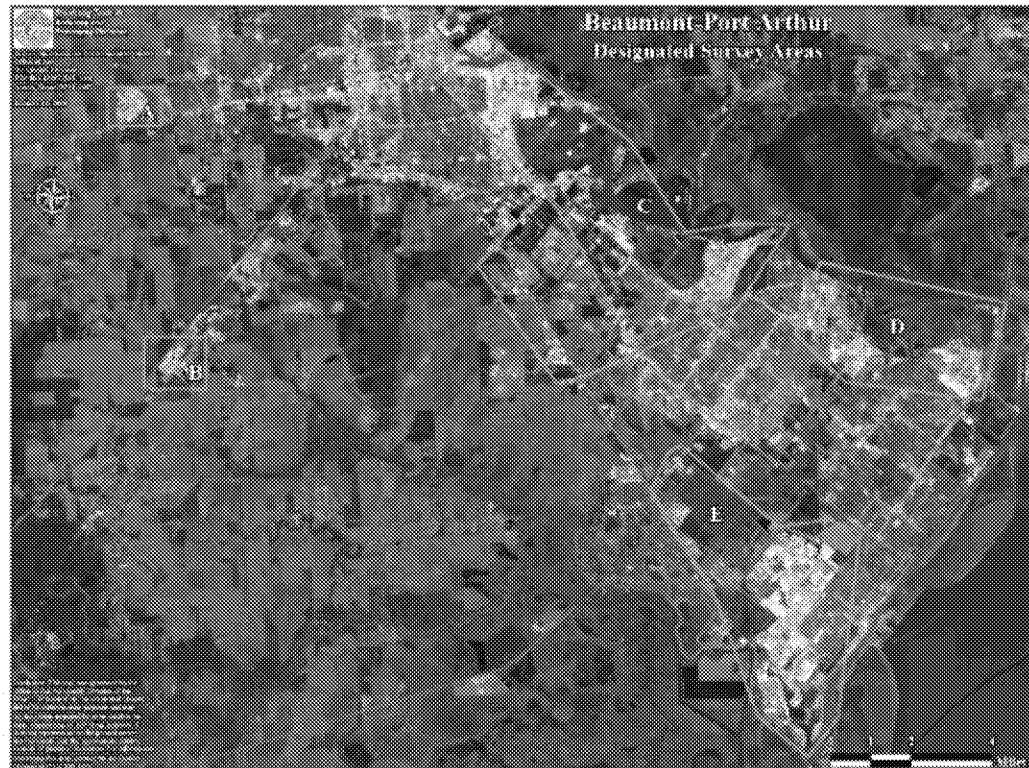


Figure 1. Locations of the Beaumont Port Arthur facilities assessed.

The map of the facilities in the Houston, Galveston, Brazoria designated survey areas can be seen in Figure 2 below.

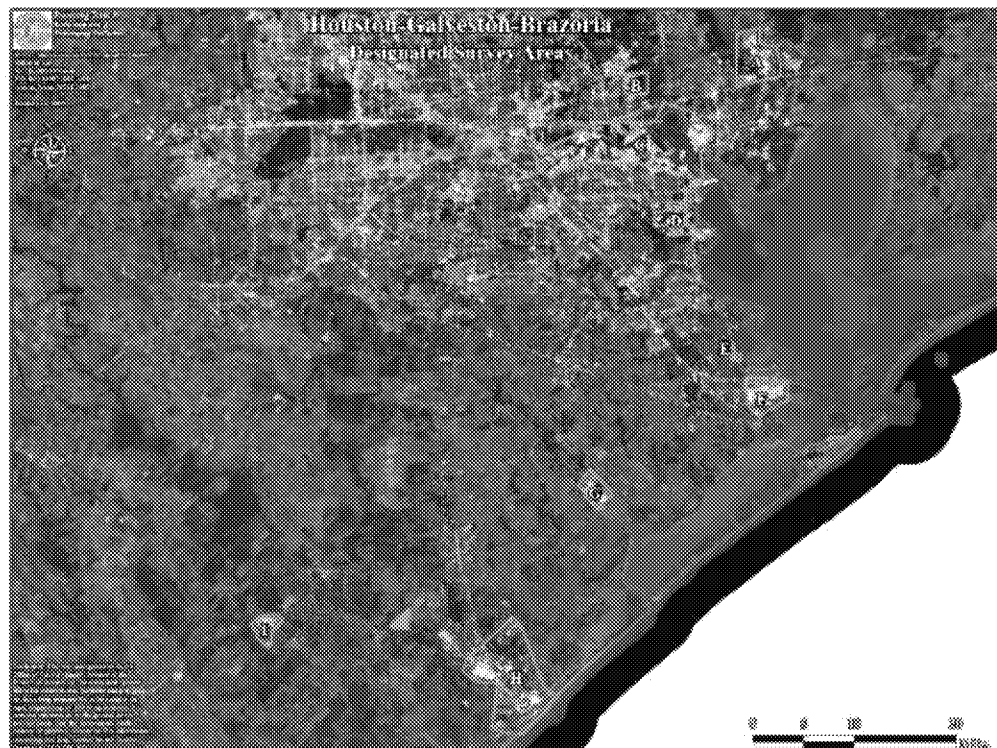


Figure 2. Facility Locations in the Houston, Galveston and Brazoria area assessed.

The map of the facilities in the Corpus Christi designated survey area can be seen in Figure 3 below.



Figure 3. Facility Locations in the Corpus Christi area assessed.

Site Setup

Region 6 provided the ASPECT Team with the maps of areas to be assessed to focus the data collection efforts. GPS coordinates were determined, and specific GPS coordinates were provided to the aircraft. The size of the survey areas and the distance between the areas influenced flight line planning. As a result, properties were surveyed with one or two flight lines per area.

Title and Approval Page
QAPP Worksheet #1 (UFP-QAPP Manual Section 2.1)

Identifying Information

QAPP Worksheet #2 (UFP-QAPP Manual Section 2.2.4)

Site/Project Name: Texas Winter Storm Uri	
Site Number/Code:	
Operable Unit: EPA ASPECT Team	
Aerial Contractor Company Name: Airborne ASPECT	Technical Contractor Company Name: Kalman
Aerial Contract Title/Name: ARSS	Technical Contract Title/Name: DPDS
Aerial Contract Number: EP-W-12-005	Technical Contract Number: GS-23F-0275N EP-G14S-00101

Quality Information Questions:

1. Identify guidance used to prepare QAPP: UFP-QAPP
2. Identify regulatory program: Comprehensive Environmental Response and Compensation Liability Act (CERCLA)
3. Identify approval entity: OEM / CMAD
4. Indicate type of QAPP: (check one) ☐ generic QAPP or ☒ project-specific QAPP
5. List dates of scoping sessions that were held: None

6. List dates and titles of QAPP documents written for previous site work, if applicable:

Title

Received Date

N/A

N/A

7. List organizational partners (stakeholders) and connection with lead organization: OEM/CMAD, Region 6
8. List data users: OEM/CMAD and Region 6
9. If any required QAPP elements and required information are not applicable to the project, then circle the omitted QAPP elements and required information on the attached table. Provide an explanation for their exclusion below:
 - Worksheet #9 – Due to the nature of an emergency response, a scoping meeting cannot be held in advance.
 - Worksheets # 12, 19-21, 23, 24-28, 30, 36 – Sampling and analytical activities are not expected to occur during this response.
 - Worksheet #37 – Usability of the data will be determined by R6

Streamlining Table for UFP-QAPP Format Requirements

Required QAPP Element(s) and Corresponding QAPP Section(s)	Crosswalk to Required Documents	Optional QAPP Worksheet # in QAPP Workbook	Required Information
Project Management and Objectives			
2.1 Title and Approval Page		1	- Title and Approval Page
2.2 Document Format and Table of Contents		N/A	- Table of Contents
2.2.1 Document Control Format		N/A	- Footer (bottom of each page)
2.2.2 Document Control Numbering System		N/A	- Footer (bottom of each page)
2.2.3 Table of Contents		N/A	- Table of Contents
2.2.4 QAPP Identifying Information		2	- QAPP Identifying Information
2.3 Distribution List and Project Personnel Sign-Off Sheet		3	- Distribution List
2.3.1 Distribution List		3	- Distribution List
2.3.2 Project Personnel Sign-Off Sheet		4	- Project Personnel Sign-Off Sheet
2.4 Project Organization			
2.4.1 Project Organizational Chart		5	- Project Organizational Chart
2.4.2 Communication Pathways		6	- Communication Pathways
2.4.3 Personnel Responsibilities and Qualifications		7	- Personnel Responsibilities and Qualifications Table
2.4.4 Special Training Requirements and Certification		8	- Special Personnel Training Requirements Table
2.5 Project Planning/Problem Definition		9	- Project Planning Session Documentation (including Data Needs tables)
2.5.1 Project Planning (Scoping)		9	- Project Scoping Session Participants Sheet
2.5.2 Problem Definition, Site History, and Background		10	- Problem Definition, Site History, and Background
		N/A	- Site Maps (historical and present)
2.6 Project Quality Objectives and Measurement Performance Criteria			
2.6.1 Development of Project Quality Objectives Using the Systematic Planning Process		11	- Site-Specific PQOs
2.6.2 Measurement Performance Criteria		12	- Measurement Performance Criteria Table

2.7 Secondary Data Evaluation		13 13	- Sources of Secondary Data and Information - Secondary Data Criteria and Limitations Table
2.8 Project Overview and Schedule		14	- Summary of Project Tasks
2.8.1 Project Overview		15	- Reference Limits and Evaluation Table
2.8.2 Project Schedule		16	- Project Schedule/Timeline Table
Measurement/Data Acquisition			
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3.1.1 Sampling Process Design and Rationale		N/A	- Monitoring Location Map
3.1.2 Sampling Procedures and Requirements			
3.1.2.1 Sampling Collection Procedures		18	- Monitoring Locations and Methods/ SOP Requirements Table
3.1.2.2 Sample Containers, Volume, and Preservation		19	- Analytical Methods/SOP Requirements Table
3.1.2.3 Equipment/Sample Containers Cleaning and Decontamination Procedures		20	- Field Quality Control Sample Summary Table
3.1.2.4 Field Equipment Calibration, Maintenance, Testing, and Inspection Procedures		20	- Sampling SOPs
3.1.2.5 Supply Inspection and Acceptance Procedures		21	- Project Sampling SOP References Table
3.1.2.6 Field Documentation Procedures		22	- Field Equipment Calibration, Maintenance, Testing, and Inspection Table
3.2 Analytical Tasks			
3.2.1 Analytical SOPs		23	- Analytical SOPs
3.2.2 Analytical Instrument Calibration Procedures		23	- Analytical SOP References Table
3.2.3 Analytical Instrument and Equipment Maintenance, Testing, and Inspection Procedures		24	- Analytical Instrument Calibration Table
3.2.4 Analytical Supply Inspection and Acceptance Procedures		25	- Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table
3.3 Sample Collection Documentation, Handling, Tracking, and Custody Procedures		26	- Sample Collection Documentation Handling, Tracking, and Custody SOPs
3.3.1 Sample Collection Documentation		26	- Sample Container Identification
3.3.2 Sample Handling and Tracking System		26	- Sample Handling Flow Diagram
3.3.3 Sample Custody		27	Example Chain-of-Custody Form and Seal

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3.4.2 Analytical Quality Control Samples		28	- Screening/Confirmatory Analysis Decision Tree
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3.5.2 Data Package Deliverables		30	- Analytical Services Table
3.5.3 Data Reporting Formats		30	- Analytical Services Table
3.5.4 Data Handling and Management		30	- Analytical Services Table
3.5.5 Data Tracking and Control		30	- Analytical Services Table
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		31	- Planned Project Assessments Table
4.1.2 Assessment Findings and Corrective Action Responses		32	- Assessment Findings and Corrective Action Responses Table
4.2 QA Management Reports		33	- QA Management Reports Table
4.3 Final Project Report		33	- Project final report delivery date
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5.2 Data Review Steps			
5.2.1 Step I: Verification		34	- Verification (Step I) Process Table
5.2.2 Step II: Validation			
5.2.2.1 Step IIa Validation Activities		35	- Validation (Steps IIa and IIb) Process Table
5.2.2.2 Step IIb Validation Activities		36	- Validation (Steps IIa and IIb) Summary Table
5.2.3 Step III: Usability Assessment			
5.2.3.1 Data Limitations and Actions from Usability Assessment		37	- Usability Assessment
5.2.3.2 Activities		37	- Usability Assessment

Distribution List
 QAPP Worksheet #3 (UFP-QAPP Manual Section 2.3.1)

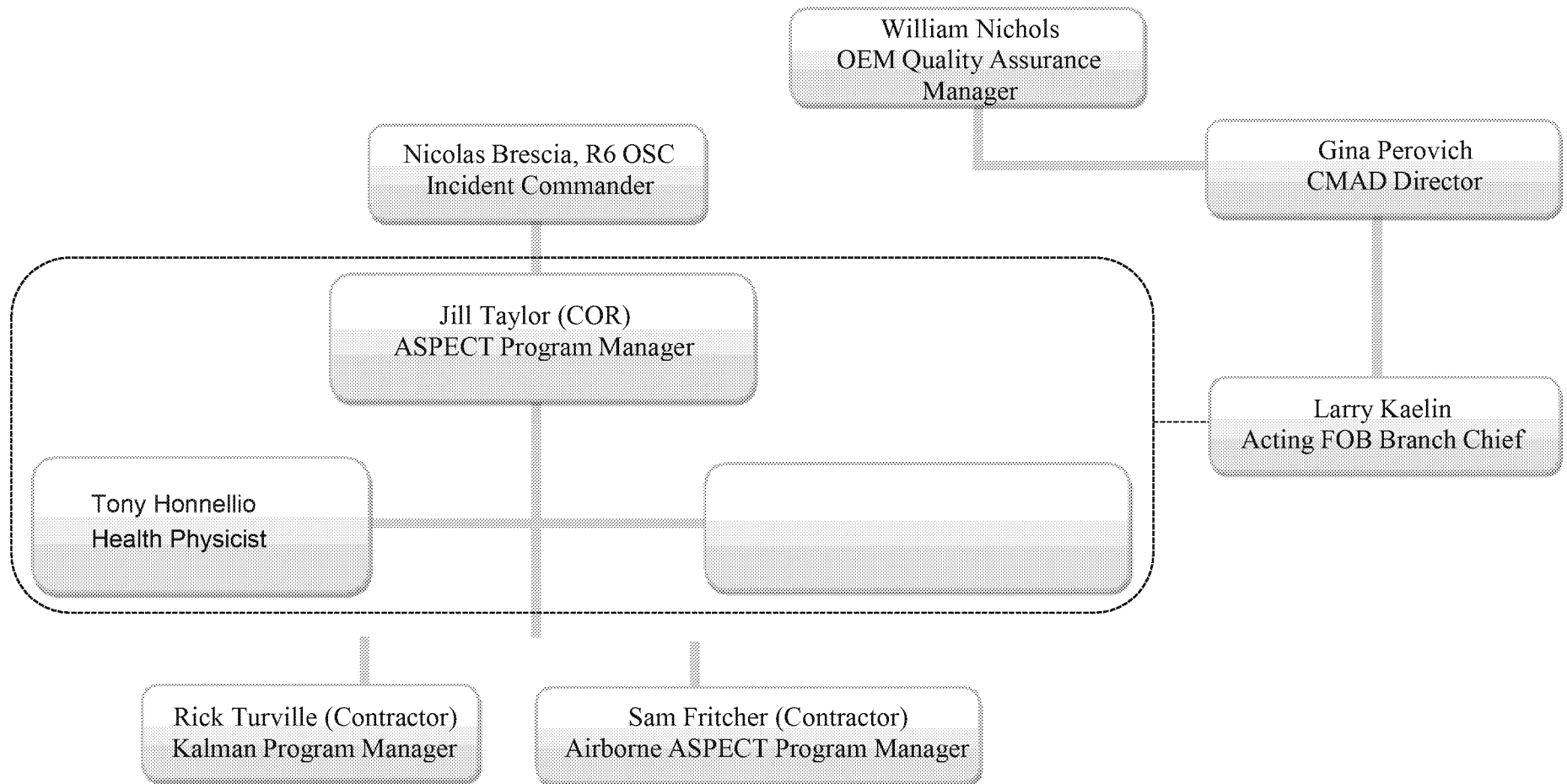
QAPP Recipients	Title	Organization	Telephone Number	Fax Number	E-mail Address	Document Control Number
Jill Taylor	ASPECT Chemical / Photometric Lead	OEM/CMAD/FOB	214-665-7545	N/A	[HYPERLINK "mailto:Taylor.Jillianne@epa.gov" \h]	QAPP-ASPECT-25SEPT2020-R01
Tony Honnellio	Health Physicist	EPA ASPECT (Detail)	617-918-1456	N/A	Honnellio.Anthony@epa.gov	QAPP-ASPECT-25SEPT2020-R01
Gina Perovich	CMAD Director	OEM/CMAD	202-564-2935	N/A	[HYPERLINK "mailto:Perovich.Gina@epa.gov" \h]	QAPP-ASPECT-25SEPT2020-R01
Edward Argenta Jr	OEM Branch Chief	OEM/CMAD	202-564-4528	N/A	Argenta.edward@epa.gov	QAPP-ASPECT-25SEPT2020-R01
Larry Kaelin	Acting FOB Branch Chief	OEM/CMAD	732-321-6625	N/A	[HYPERLINK "mailto:Kaelin.Lawrence@epa.gov" \h]	QAPP-ASPECT-25SEPT2020-R01
William Nichols	OEM Quality Assurance Manager	OEM/RMD	202-564-1970	N/A	[HYPERLINK "mailto:Nichols.Nick@epa.gov" \h]	QAPP-ASPECT-25SEPT2020-R01

Project Personnel Sign-Off Sheet
QAPP Worksheet #4 (UFP-QAPP Manual Section 2.3.2)

Organization: OEM / CMAD / ASPECT

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read Email Receipt
Jill Taylor	ASPECT Chemical Lead	214-665-7545	[HYPERLINK "mailto:Taylor.Jillianne@epa. gov" \h]	
William Nichols	OEM Quality Assurance Manager	202-564-1970	[HYPERLINK "mailto:Nichols.Nick@epa.go v" \h]	

Project Organizational Chart
QAPP Worksheet #5 (UFP-QAPP Manual Section 2.4.1)



Communication Pathways
 QAPP Worksheet #6 (UFP-QAPP Manual Section 2.4.2)

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (timing, pathways, etc.)
Approval of Initial QAPP and any amendments	Program Manager CMAD Director FOB Branch Chief OEM Quality Assurance Manager	Jill Taylor Gina Perovich Larry Kaelin William Nichols	214-665-7545 214-665-3143 202-564-2935 732-321-6625 202-564-1970	ASPECT Program internal peer review, followed by CMAD approval, implementation of changes effective only with approved QAPP or QAPP Change Form. QAPPs must be finalized 30 days after the response by OEM/CMAD Program.
Communication with Contracting Officer for approval, purchase request, and task orders	COR Alternate COR	Jill Taylor	214-665-6748 214-665-3143	For emergency responses, CO must give approval before being formally activated. Funding pathways and future funding needs must be estimated before commitments are agreed.
Communication with Pilot and Crew	Pidgin Grounds Operator (EPA) Pidgin Air Operator (ARSS) Pidgin Ground Operator (DPDS)	Tony Honnellio Sam Fritcher (Lead) Rick Turville (Lead)	617-918-1456 410-258-6281 540-287-3459	Communication from the ground to the plane must always be maintained during missions via Pidgin to communicate health and safety concerns, needs/changes of the mission, and confirmation of individual task status.
Briefings and De-briefings of Pilots and Crew	Program Manager Pidgin Grounds Operator (EPA) ARSS Program Manager Pilots Operators	Jill Taylor Tony Honnellio Sam Fritcher (Lead) Varies Varies	214-665-7545 617-918-1456 410-258-6281 Varies Varies	Before mission, morning briefings are conducted to go over the mission tasks for the day, discuss lessons learned from the previous day, go over flight expectations/changes, review weather, and stress any/all health and safety concerns. De-briefings are conducted to review over the task completed for the day and any changes for the following day, if applicable.

Briefings and De-briefings with reach back team	Program Manager Health Physicist ARSS Program anager <u>Subject</u> <u>Matter</u> <u>Experts</u>	Jill Taylor Tony Honnellio Sam Fritcher Rick Turville (Lead) Varies Varies	214-665-7545 214-665-3143 410-258-6281 540-287-3459 Varies Varies	Briefings and discussions between the Government team and the reach back team concerning data collection standards and methods, sensor systems, fault analysis, and data quality.

Personnel Responsibilities and Qualifications Table
 QAPP Worksheet #7 (UFP-QAPP Manual Section 2.4.3)

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
John Martin	Physical Scientist	US EPA/OEM/CMAD	Technical Direction	EPA job-related qualifications
Jill Taylor	Physical Scientist	US EPA OEM/CMAD	Technical Support (Lead)	EPA job-related qualifications
Lyndsey Nguyen	Health Physicist	US EPA OEM/CMAD	Technical Support	EPA job-related qualifications
Gina Perovich	Physical Scientist	US EPA OEM/CMAD	ASPECT Program Management/Support	EPA job-related qualifications
Larry Kaelin	Chemist	US EPA OEM/CMAD	ASPECT Program Management/Support	EPA job-related qualifications
William Nichols	Program Analyst	US EPA/OEM/RMD	OEM Quality Assurance Manager	EPA job-related qualifications
Sam Fritcher	ARSS Program Manager	ARSS/Airborne ASPECT	Lead Program Manager (Contractor)	Qualifications as listed in contract
Rick Turville	DPDS Program Manager	DPDS/Kalman	Lead Program Manager (Contractor)	Qualifications as listed in contract

Special Personnel Training Requirements Table
 QAPP Worksheet #8 (UFP-QAPP Manual Section 2.4.4)

Project Function	Specialized Training By Title or Description of Course	Training Provider	Training Date	Personnel / Groups Receiving Training	Personnel Titles / Organizational Affiliation	Location of Training Records / Certificates
COR/Alternate COR	COR Level 2 Certification	FAITAS	2019 (recertification)	John Martin	COR	Online/In-person CLPs
			2020 (recertification)	Lyndsey Nguyen	Alternate COR	Online/In-person CLPs

Project Scoping Session Participants Sheet
 QAPP Worksheet #9 (UFP-QAPP Manual Section 2.5.1)

Project Name: Projected Date(s) of Sampling: <hr style="width: 100%;"/> Project Manager:		Site Name: Site Location:			
Date of Session: Scoping Session Purpose:					
Name	Title	Affiliation	Phone #	E-mail Address	Project Role
	N/A—Project Scoping Session was not conducted due to the project being an emergency response.				

Comments/Decisions:

Action Items:

Consensus Decisions:

Problem Definition
QAPP Worksheet #10 (UFP-QAPP Manual Section 2.5.2)

The problem to be addressed by the project:

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US. The advantage of deploying the ASPECT aircraft is to provide situational awareness to the Region/State/locals in a relatively short time while remotely determining if any detections from ASPECT's chemical library are present.

The environmental questions being asked:

- Would the RMP sites and air quality be affected by Hurricane IDA?
-If so, are the ASPECT systems on the airplane detecting any of the 76 chemicals listed in ASPECT's chemical library? If so, where are the chemicals located (at which facility) and what is the estimated concentration for each chemical detected?

Observations from any site reconnaissance reports:

N/A—ASPECT was the first on the scene; no previous information was provided.

A synopsis of secondary data or information from site reports: N/A—no secondary data has been collected.

The possible classes of contaminants and the affected matrices: Gaseous chemical plumes from various manufacturing and petrochemical plants; potential chemicals of concern unknown, screening performed for all chemicals in the ASPECT auto-detect library.

The rationale for inclusion of chemical and nonchemical analyses:

The chemicals detected during flight are limited to the chemicals listed within ASPECT's 76 chemical library (See Table 1 below for complete list of chemicals in the library). No further analysis is conducted since ASPECT collects data remotely (no sampling occurs during flights nor does the airplane fly into the plume)

Problem Definition (continued)
QAPP Worksheet #10 (UFP-QAPP Manual Section 2.5.2)

Information concerning various environmental indicators:

The ASPECT plane can identify both visual and non-visual plumes and fires. While smoke is a great indication of a potential release, the ASPECT team relies more on the sensitive chemical sensors on board to make the ultimate determination of chemical detections.

Project decision conditions (If..., then...@ statements):

If a chemical is detected, the ASPECT Team will provide Region 6 with the data including the chemical name detected, the concentration, and location of the detection. While the ASPECT Team can make limited, general assumptions about the data (i.e. slightly elevated vs. extremely elevated values compared to the detection level), the ultimate decision for human health effects must come from Region 6, specifically the Region's toxicologists, risk assessors, and/or environmental unit.

Table 1. List of ASPECT's 76 Chemical Library for the FTIR Spectrometer
Detection Limits are posted in the parenthesis next to the chemical name in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Quality Objectives/Systematic Planning Process Statements
QAPP Worksheet #11 (UFP-QAPP Manual Section 2.6.1) – Project

Who will use the data?

The data collected by ASPECT will be released to the Region through the Operations Branch to the Incident Commander. For smaller responses, direct communication with the designated, assigned OSC from the Region may occur. Once released from the response/incident/site, the data should be reviewed at a minimum by the Regional toxicologists, risk assessors, and/or environmental unit for determining exceedances for human health concerns, including residential and worker safety.

What will the data be used for?

The data may be incorporated into the response/site data for emergency response decision making purposes (e.g. identifying areas of concern, prioritizing resources, determining exceedances to human health and environmental impact guidelines).

What type of data are needed (matrix, target analytes, analytical groups, field screening, on-site analytical or off-site laboratory techniques, sampling techniques)?

The type of data collected by the ASPECT platform is called "remote sensing." No physical collection of material is conducted nor is the plane flying through areas of concern. Instead, the ASPECT plane can determine presence of specific chemicals from afar, without the need of sampling.

Matrix: No physical sample is collected; however, air is the matrix used for remote chemical detection.

How "good" do the data needs to be to support the environmental decision?

The ASPECT data sensitivity levels vary depending upon the chemical-specific detection limits for each chemical listed in ASPECT's chemical library. The concentrations in air would need to exceed the detection level for the specific chemicals to be detected. Once detected, the estimated concentration should be considered screening data for human health impact.

How much data are needed (number of samples for each analytical group, matrix, and concentration)?

The ASPECT chemical sensors screen for the presence of chemicals. Depending on the request, ASPECT can collect single data points or multiple data points. ASPECT collects chemical data at a rate of 70 samples (scans) per second. Typically, the ASPECT data is collected in "Lines" which contains information such as photometric images (oblique images as well as downward-looking images), as well as any chemical detections and/or the presence of a visible/non-visible plume. Lines are flown until the incident has been controlled or the scene has been adequately surveyed.

Project Quality Objectives/Systematic Planning Process Statements (continued)
QAPP Worksheet #11 (UFP-QAPP Manual Section 2.6.1)

Where, when, and how should the data be collected/generated?

Chemical data is typically collected at 2800 ft AGL at roughly 105 knots. While this is the optimal altitude and ground collection speed, lower altitudes including collection during rain events can be accomplished if necessary. Conditions have clouds within the field of view of the sensors should be avoided. Who will collect and generate the data?

The data is collected by the ASPECT Team utilizing two separate contractors:

1. ARSS Contract (also known as Airborne ASPECT) oversees the plane, pilots, and crew. Each mission consists of 2 pilots and 1 operator. The operator is in constant communication with the ground crew and the pilot. The operator is ASPECT's eyes and ears in the air. He/she lets the ground crew know of any changes, obstacles, weather conditions, and/or health and safety concerns during the mission.
2. DPDS Contract (also known as Kalman) oversees the data collection. Data from the plane is pushed through the satellite communications system to the ground-based crew. The ground crew processes the data to create various maps, graphs, and photos used for the incident command. All detections of chemicals are verified by pulling the specific spectrum to observe the peaks. The data can come in a variety of different formats. EPA personnel work with the Regional Data Managers to generate data products into specific formats needed.

How will the data be reported?

The data is reported in a variety of different ways and formats throughout the response. The ASPECT Team will coordinate with the Regional Data Managers to determine the best way to transfer the data as the data is collected. At a minimum, the Region will receive a "Final Report" in roughly a day after the response is concluded. In addition, an FTP site will be created for all the files. During the response, pictures, graphs, and figures can be sent to the Region to give a better situational awareness of the incident. Any detections, including the location, chemical name, and concentration, will be sent via email with a follow-up phone call from the Program Manager to the Operations Chief, IC, or designated point-of-contact explaining the detection.

How will the data be archived?

All data will be maintained on a project specific FTP site temporarily; then the data will be stored on the ASPECT server for long term recovery. No files will ever be deleted.

Measurement Performance Criteria Table
 QAPP Worksheet #12 (UFP-QAPP Manual Section 2.6.2)

Matrix	Air				
Analytical Group	Varies				
Concentration Level	Varies				
Sampling Procedure	Analytical Method/SOP	Data Quality Indicators (DQIs)	Measurement Performance Criteria	QC Sample and / or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A), Imagery (I), Flight (F)
FTIR	N/A	False Alarm Detections	Pattern Recognition algorithm compares the acquired spectrum against 76 chemical libraries for detections. Non-detections in controlled settings indicate proper spectrometer operation.	Spectroscopist manually checks the chemical identified by the pattern recognition algorithm to individual spectrums. This is a secondary confirmation of the proper spectrometer operation	A
IRLS	N/A	Typical imagery data content. Saturation/Halo affect Image registration	Analysis of data shows high values for elevated temperature targets and low values for cold targets. Flying over fires/hot spots should saturate the IRLS—rainbow affect will occur on image. Visually ensure images from IRLS are in georegistered against	Image data will be checked for content as related to the flanking blackbody settings. Images will be checked to ensure saturation occurs during fire/extreme temperature hot spots. Flight parameters are checked for pitch, roll, heading, velocity, and	I / F

			known maps datums. with little warping/distortion of the image occurring	speed to maximize the best quality in IRLS imagery	
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Secondary Data Criteria and Limitations Table
QAPP Worksheet #13 (UFP-QAPP Manual Section 2.7)

Secondary Data	Data Source (originating organization, report title and date)	Data Generator(s) (originating organization, data types, data generation / collection dates)	How Data Will Be Used	Limitations on Data Use
	N/A—No secondary data is pulled into the ASPECT System.			

Summary of Project Tasks

QAPP Worksheet #14 (UFP-QAPP Manual Section 2.8.1)

Monitoring Tasks:

ASPECT has been tasked to fly over facilities locations provided by Region 6. Depending on the size of the facility, at least one line will be flown to gather data for determining if any chemicals are being detected from ASPECT's 76 automated chemical library. A minimum of one photo will be taken over each facility.

Analysis Tasks:

(1) The Infrared Line Scanner (IRLS) will be used to qualitatively locate and characterize any visible and non-visible components of a plume, as well as any areas on fire.

(2) The Fourier Transform Infrared (FTIR) Spectrometer will be used to screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library.

Quality Control Tasks:

Before each mission, a test line is conducted to ensure the chemical detection and photographic systems are working properly.

Secondary Data:

N/A—no secondary data is used for collecting primary data from ASPECT.

Other Data:

N/A

Data Management Tasks:

Data is managed on a project-specific FTP site accessible by the Region at any time throughout the response. The site address, FTP site name, and password will be provided to the designated data OSC requesting information.

Documentation and Records:

Temporarily, the site-specific FTP is used as storage for all data. After the response, the Project FTP site is deleted. All permanent files from the response are housed on the ASPECT server.

Assessment / Audit Tasks

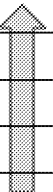

The quality of data and reporting is assessed using informal peer reviews and management reviews. Peer review enables the field personnel, of the ASPECT Team, as well as the Regions, to identify and correct reporting errors before reports are submitted. Management reviews final reports before data and the reports are released to the customer. Management review ensures both data and reports are compliant with prevailing management structure, policies, and procedures, and ensures that the data reported is not misrepresented nor misinterpreted for its initial intent.

Data Review Tasks:



All ASPECT deliverables will be reviewed by the ASPECT Government Team. Final drafts of reports are reviewed by Management before they are released outside of CMAD.

Reference Limits and Evaluation Table
 QAPP Worksheet #15 (UFP-QAPP Manual Section 2.8.1)

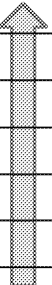

Matrix: Air (remote sensing)
 Analytical Group: Chemical Compounds
 Concentration Level: Varies depending on the chemical

Analyte		CAS Number	Project Action Limit* (ppm)	Project Quantitation Limit Goal** (ppm)	Analytical Method		Achievable Laboratory Limits	
					MDLs	Method QLs	MDLs	QLs
1.	Acetic Acid	64-19-7	 Project Action Limits will be specified by the Region's Risk Assessor / Toxicologist 	2.0				
2.	Acetone	67-64-1		5.6				
3.	Acrolein	107-02-8		8.8				
4.	Acrylonitrile	107-13-1		12.5				
5.	Acrylic Acid	79-10-7		3.3				
6.	Allyl Alcohol	107-18-6		5.3	N/A—No sampling nor collection of air is conducted during the ASPECT mission.			
7.	Ammonia	7664-41-7		2.0				
8.	Arsine	7784-42-1		18.7				
9.	Bis-Chloroethyl Ether	111-44-4		1.7				
10.	Boron Tribromide	10294-33-4		0.2				
11.	Boron Trifluoride	7637-07-2		5.6				
12.	1,3-Butadiene	106-99-0		5.0				
13.	1-Butene	106-98-9		12.0				
14.	2-Butene	107-01-7		18.8				
15.	Carbon Tetrachloride	56-23-5		0.2				

Reference Limits and Evaluation Table (continued)
 QAPP Worksheet #15 (UFP-QAPP Manual Section 2.8.1)


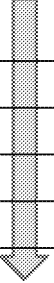
Analyte		CAS Number	Project Action Limit* (ppm)	Project Quantitation Limit Goal** (ppm)	Analytical Method		Achievable Laboratory Limits	
					MDLs	Method QLs	MDLs	QLs
16.	Carbonyl Fluoride	353-50-4	 Project Action Limits will be specified by the Region's Risk Assessor / Toxicologist	0.8				
17.	Carbon Tetrafluoride	75-73-0		0.1				
18.	Chlorodifluoromethane	75-45-6		0.6				
19.	Chloromethane	74-87-3		12				
20.	Cumene	98-82-8		23.1				
21.	Diborane	19287-45-7		5.0				
22.	1,1-Dichloroethene	75-35-4		3.7				
23.	Dichloromethane	75-09-2		6.0				
24.	Dichlorodifluoromethane	75-71-8		0.7				
25.	1,1-Difluoroethane	75-37-6		0.8	N/A—No sampling nor collection of air is conducted during the ASPECT mission.			
26.	Difluoromethane	75-10-5		0.8				
27.	Ethanol	64-17-5		6.3				
28.	Ethyl Acetate	141-78-6		0.8				
29.	Ethyl Acrylate	140-88-5		0.8				
30.	Ethyl Formate	109-94-4		1.0				
31.	Ethylene	74-85-1		5.0				
32.	Formic Acid	64-18-6		5.0				
33.	Freon 134a	811-97-2		0.8				
34.	GA (Tabun)	77-81-6		0.7				
35.	GB (Sarin)	107-44-8		0.5				
36.	Germane	7782-65-2		1.5				
37.	Hexafluoroacetone	684-16-2		0.4				

Reference Limits and Evaluation Table (continued)
 QAPP Worksheet #15 (UFP-QAPP Manual Section 2.8.1)

Analyte		CAS Number	Project Action Limit* (ppm)	Project Quantitation Limit Goal** (ppm)	Analytical Method		Achievable Laboratory Limits	
					MDLs	Method QLs	MDLs	QLs
38.	Isobutylene	115-11-7	 Project Action Limits will be specified by the Region's Risk Assessor / Toxicologist	15				
39.	Isoprene	78-79-5		6.5				
40.	Isopropanol	67-63-0		8.5				
41.	Isopropyl Acetate	108-21-4		0.7				
42.	MAPP	143492-38-0		3.7				
43.	Methyl Acetate	79-20-9		1.0				
44.	Methyl Acrylate	96-33-3		1.0				
45.	Methyl Ethyl Ketone	78-93-3		7.5				
46.	Methanol	67-56-1		5.4				
47.	Methyl bromide	74-83-9		60				
48.	Methylene Chloride	75-09-20		1.1				
49.	Methyl Methacrylate	80-62-6		3.0				
50.	MTEB	1634-04-4		3.8				
51.	Naphthalene	91-20-3		3.8				
52.	n-Butyl Acetate	123-86-4		3.8				
53.	n-Butyl Alcohol	71-36-3		7.9				
54.	Nitric Acid	7697-37-2		5.0				
55.	Nitrogen Mustard	51-75-2		2.5				
56.	Nitrogen Trifluoride	7783-54-2		0.7				
57.	Phosgene	75-44-5		0.5				
58.	Phosphine	7803-51-2		8.3				

N/A—No sampling nor collection of air is conducted during the ASPECT mission.

Reference Limits and Evaluation Table (continued)
 QAPP Worksheet #15 (UFP-QAPP Manual Section 2.8.1)

Analyte		CAS Number	Project Action Limit* (ppm)	Project Quantitation Limit Goal** (ppm)	Analytical Method		Achievable Laboratory Limits	
					MDLs	Method QLs	MDLs	QLs
59.	Phosphorus Oxychloride	10025-87-3	 Project Action Limits will be specified by the Region's Risk Assessor / Toxicologist 	2.0				
60.	Propyl Acetate	109-60-4		0.7				
61.	Propylene	115-07-1		3.7				
62.	Propylene Oxide	75-56-9		6.8				
63.	Silicon Tetrafluoride	7783-61-1		0.2				
64.	Sulfur Dioxide	7446-09-5		15				
65.	Sulfur Hexafluoride	2551-62-4		0.07	N/A—No sampling nor collection of air is conducted during the ASPECT mission.			
66.	Sulfur Mustard	505-60-2		6.0				
67.	Sulfuryl Fluoride	2699-79-8		1.5				
68.	Tetrachloroethylene	127-18-4		10				
69.	1,1,1-Trichloroethane	71-55-6		1.9				
70.	Trichloroethylene	156-60-5 (E)		2.7				
71.	Trichloromethane	67-66-3		0.7				
72.	Triethylamine	121-44-8		6.2				
73.	Triethylphosphate	78-40-0		0.3				
74.	Trimethylamine	75-50-3		9.3				
75.	Trimethyl Phosphite	121-45-9		0.4				
76.	Vinyl Acetate	108-05-4		0.6				

* represents the screening value used for notifying the Region. The values in this column are from the Texas Commission on Environmental Quality (TCEQ) short-term Air Monitoring Comparison Values (AMCVs)

**represents the minimum detectable concentration for ASPECT to flag the chemical as a “detect” based on a 100 meter pathlength

Project Schedule / Timeline Table
 QAPP Worksheet #16 (UFP-QAPP Manual Section 2.8.2)

Activities	Organization	Dates (DD Month YYYY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Initial Activation for Mission	Region 6	27 AUGUST 2020	31 AUGUST 2020	Photometric / Chemical Data	Preliminary Data, ASAP with follow-up reports/briefs (internal)
Property Assessments Day 1	US EPA/OEM/CMAD	28 AUGUST 2020	28 AUGUST 2020	Draft Report	29 AUGUST 2020
Property Assessments Day 1	US EPA/OEM/CMAD	28 AUGUST 2020	28 AUGUST 2020	All Files: Day 1	29 AUGUST 2020
Property Assessments Day 2	US EPA/OEM/CMAD	29 AUGUST 2020	29 AUGUST 2020	Draft Report	30 AUGUST 2020
Property Assessments Day 2	US EPA/OEM/CMAD	29 AUGUST 2020	29 AUGUST 2020	All Files: Days 1-2	30 AUGUST 2020
Property Assessments Total	US EPA/OEM/CMAD	28 AUGUST 2020	30 AUGUST 2020	Final Report	31 AUGUST 2020
Property Assessments Total	US EPA/OEM/CMAD	28 AUGUST 2020	30 AUGUST 2020	All Files	31 AUGUST 2020
External Reporting for R6 Publication for Public Info	US EPA/OEM/CMAD	28 AUGUST 2020	6 SEPT 2020	External Report	6 SEPT 2020

Monitoring Design and Rationale
QAPP Worksheet #17 (UFP-QAPP Manual Section 3.1.1)

Describe and provide a rationale for choosing the Monitoring approach (e.g., grid system, biased statistical approach):

List of properties with GPS Coordinates was provided to ASPECT Team from Region 6.
A map of the facilities geo-referenced onto a map was created through Google Earth.
Flight lines are numbered sequentially based on the location of the area to be surveyed.
Each day new flight line numbers will be flown to assess each property for any plumes, fires, and/or detections over the areas.
Data, including any observances or detections, will be relayed back to the Region for situational awareness.
Pilots will inform aircraft operators to report to ground control team if any weather issues occur or seen from the aircraft, and if any health and safety concerns arise during flight.
Tracking of flight lines will be conducted by both the operator and ground control.
Constant communication between the operator and ground control must be always maintained.
When all lines are complete, the mission has ended. ASPECT Team will contact the Region when mission is complete for further instruction.

Describe the sampling design and rationale in terms of what matrices will be sampled, what analytical groups will and at what concentration levels, the sampling locations (including QC, critical, and background samples), the number of samples to be taken, and the sampling frequency (including seasonal considerations) [May refer to map or Worksheet #18 for details]:

Photometric images will be collected for each flight line.
Air will be monitored for the chemical compounds listed in ASPECT's 76 chemical library using the FTIR.
Any plumes/smoke will be imaged and assessed while airborne using the IRLS.
Each line is geographically located to optimize the best flight paths in the least amount of time.
Flight lines are uploaded to the pilot's Garmin remotely.

Sampling Locations and Methods/SOP Requirements Table
 QAPP Worksheet #18 (UFP-QAPP Manual Section 3.1.1)

Sampling Location / ID Number	Matrix	Altitude AGL (feet)	Analytical Group	Concentration Level	Number of Samples	Sampling SOP Reference	Rationale for Sampling Location
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern

Sampling Location / ID Number	Matrix	Altitude AGL (feet)	Analytical Group	Concentration Level	Number of Samples	Sampling SOP Reference	Rationale for Sampling Location
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern

Sampling Location / ID Number	Matrix	Altitude AGL (feet)	Analytical Group	Concentration Level	Number of Samples	Sampling SOP Reference	Rationale for Sampling Location
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern
	Air Space on designated flight line	2800 ft (ideal but depends on weather)	ALL	Varies	Minimum: 1 photo, 1 IRLS, 1 FTIR	N/A	Facility of Concern

Analytical SOP Requirements Table
 QAPP Worksheet #19 (UFP-QAPP Manual Section 3.1.1)

Matrix	Analytical Group	Concentration Level	Analytical and Preparation Method / SOP Reference	Sample Volume	Containers (number, size, and type)	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation / analysis)
			N/A—No sampling nor collection of air is conducted during the ASPECT mission.				

Field Quality Control Sample Summary Table
 QAPP Worksheet #20 (UFP-QAPP Manual Section 3.1.1)

Matrix	Analytical Group	Conc. Level	Analytical and Preparation SOP Reference	No. of Sampling Locations	No. of Field Duplicate Pairs	No. of MS	No. of Field Blanks	No. of Equip. Blanks	No. of PT Samples	Total No. of Samples to Lab
				N/A—No field sampling nor collection of air is conducted during the ASPECT mission.						

Project Sampling SOP References Table
 QAPP Worksheet #21 (UFP-QAPP Manual Section 3.1.2)

Reference Number	Title, Revision Date and / or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
		N/A—No sampling nor collection of air is conducted during the ASPECT mission.			

Field Equipment Calibration, Maintenance, Testing, and Inspection Table
 QAPP Worksheet #22 (UFP-QAPP Manual Section 3.1.2.4)

Field Equipment	Calibration Activity	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
FTIR	Annual checks are performed as needed	As needed, typically software upgrades	Monthly Readiness Checks / Pre-Flight Testing	Identifying blue light turns on to ensure internal checks complete	Monthly / On missions	System turns ON without error/alarm	ASPECT Team must be contacted for further action	Operator, ARSS	N/A
IRLS	Annual checks are performed as needed	As needed, typically software upgrades	Monthly Readiness Checks / Pre-Flight Testing	Identifying red light turns on to ensure internal checks complete	Monthly / On missions	System turns ON without error/alarm	ASPECT Team must be contacted for further action	Operator, ARSS	N/A
MSIC	N/A	As needed, typically software upgrades	Monthly Readiness Checks / Weekly Systems Check / Pre-Flight Testing	Ensure powered-up correctly	Monthly / Weekly / On missions	System turns ON without error/alarm	ASPECT Team must be contacted for further action	Operator, ARSS	N/A
Oblique	N/A	As needed, typically software upgrades	Monthly Readiness Checks / Weekly Systems Check / Pre-Flight Testing	Ensure powered-up correctly	Monthly / Weekly / On missions	System turns ON without error/alarm	ASPECT Team must be contacted for further action	Operator, ARSS	N/A

Analytical SOP References Table
 QAPP Worksheet #23 (UFP-QAPP Manual Section 3.2.1)

Reference Number	Title, Revision Date, and / or Number	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)
			N/A—No sampling nor collection of air is conducted during the ASPECT mission.			

Analytical Instrument Calibration Table
 QAPP Worksheet #24 (UFP-QAPP Manual Section 3.2.2)

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
	N/A—Due to the physical location of our instruments mounted on the plane, the instruments cannot be calibrated. The instruments perform internal checks to calibrate itself prior to each mission, at a minimum.					

Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table
 QAPP Worksheet #25 (UFP-QAPP Manual Section 3.2.3)

Instrument / Equipment	Maintenance Activity	Testing Activity	Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference
			N/A—No analytical instrumentation and equipment are part of the ASPECT suite of sensors/detectors.					

Sample Handling System
 QAPP Worksheet #26 (UFP-QAPP Manual Appendix A)

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT	
Sample Collection (Personnel/Organization):	
Sample Packaging (Personnel/Organization):	
Coordination of Shipment (Personnel/Organization):	
Type of Shipment/Carrier:	N/A—No sampling nor collection of air is conducted during the ASPECT mission.
SAMPLE RECEIPT AND ANALYSIS	
Sample Receipt (Personnel/Organization):	
Sample Custody and Storage (Personnel/Organization):	
Sample Preparation (Personnel/Organization):	
Sample Determinative Analysis (Personnel/Organization):	
SAMPLE ARCHIVING	
Field Sample Storage (No. of days from sample collection):	
Sample Extract/Digestate Storage (No. of days from extraction/digestion):	
Biological Sample Storage (No. of days from sample collection):	
SAMPLE DISPOSAL	
Personnel/Organization:	
Number of Days from Analysis:	

Sample Custody Requirements Table
QAPP Worksheet #27 (UFP-QAPP Manual Section 3.3.3)

Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory):

Laboratory Sample Custody Procedures (receipt of samples, archiving, disposal):

Sample Identification Procedures:

N/A—No sampling nor collection
of air is conducted during the
ASPECT mission.

Chain-of-custody Procedures:

QC Samples Table
 QAPP Worksheet #28 (UFP-QAPP Manual Section 3.4)

Matrix						
Analytical Group						
Concentration Level						
Sampling SOP						
Analytical Method / SOP Reference						
Sampler's Name						
Field Sampling Organization						
Analytical Organization						
Number of Sample Locations						
QC Sample	Frequency / Number	Method / SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria
Equip blank						
MS (Lab QC)			N/A—No sampling nor collection of air is conducted during the ASPECT mission.			
Field Duplicate						
LFB (QL)						

Project Documents and Records Table
 QAPP Worksheet #29 (UFP-QAPP Manual Section 3.5.1)

Sample/Monitoring Collection Documents and Records	On-Site/In-Air Analysis Documents and/or Records	Off-Site/Ground Analysis Documents and/or Records	Data Assessment Documents and Records	Other
MSIC Data Files	Yes—compressed version of files	Yes—full data files are received and assessed	Visually scanned for obstacles/limitations in the pictures (e.g., clouds, lack of light)	N/A
FTIR Data Files	Yes—detections only files are pulled	Yes—full data files are received and assessed	For all detects, data spectrums for the hit are assess/verified. Graphs showing the spectrum is provided in the Final Report.	N/A
IRLS Data Files	Yes—compressed version of files only	Yes—full data files are received and assessed	Visual products are created. Data is assessed during flight to optimize all parameters: pitch, roll, and heading of the plane, as well as velocity and height of the plane	N/A

Analytical Services Table
 QAPP Worksheet #30 (UFP-QAPP Manual Section 3.5.2.3)

Matrix	Analytical Group	Concentration Level	Sample Locations/ID Number	Analytical SOP	Data Package Turnaround Time	Laboratory / Organization (name and address, contact person and telephone number)	Backup Laboratory / Organization (name and address, contact person and telephone number)
				N/A—No sampling nor collection of air is conducted during the ASPECT mission.			

Planned Project Assessments Table
 QAPP Worksheet #31 (UFP-QAPP Manual Section 4.1.1)

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment (title and organizational affiliation)	Person(s) Responsible for Responding to Assessment Findings (title and organizational affiliation)	Person(s) Responsible for Identifying and Implementing Corrective Actions (CA) (title and organizational affiliation)	Person(s) Responsible for Monitoring Effectiveness of CA (title and organizational affiliation)
MSIC images	Each Line	Internal	DPDS Contractor	Brian Dess, DPDS	Mark Thomas, DPDS Jill Taylor, EPA	Mark Thomas, DPDS Jill Taylor, EPA	Mark Thomas, DPDS Jill Taylor, EPA
Oblique Images	Each Line	Internal	DPDS Contractor	Brian Dess, DPDS	Mark Thomas, DPDS Jill Taylor, EPA	Mark Thomas, DPDS Jill Taylor, EPA	Mark Thomas, DPDS Jill Taylor, EPA
FTIR Data detections	Only on detections	Internal	DPDS Contractor	Robert Kroutil, DPDS	Robert Kroutil, DPDS Jill Taylor, EPA	Robert Kroutil, DPDS Jill Taylor, EPA	Robert Kroutil, DPDS Jill Taylor, EPA
IRLS images	Each Line	Internal	DPDS Contractor	Robert Kroutil, DPDS	Robert Kroutil, DPDS Jill Taylor, EPA	Robert Kroutil, DPDS Jill Taylor, EPA	Robert Kroutil, DPDS Jill Taylor, EPA

Assessment Findings and Corrective Action Responses
 QAPP Worksheet #32 (UFP-QAPP Manual Section 4.1.2)

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response	Timeframe for Response
MSIC images	Image File Quality	Jill Taylor, EPA Chemical and Photometric Lead	Immediately, post processing	Any corrective actions of re-flying the line is documented in Pidgin	ARSS Operator in the plane to communicate with pilot	Immediately
Oblique Images	Image File Quality	Jill Taylor, EPA Chemical and Photometric Lead	Immediately, post processing	Any corrective actions of re-flying the line is documented in Pidgin	ARSS Operator in the plane to communicate with pilot	Immediately
FTIR Data detections	FTIR Spectrum File	Jill Taylor, EPA Chemical and Photometric Lead	Immediately, post processing	Any corrective actions of re-flying the line is documented in Pidgin	ARSS Operator in the plane to communicate with pilot	Immediately
IRLS images	Image File Quality	Jill Taylor, EPA Chemical and Photometric Lead	Immediately, post processing	Any corrective actions of re-flying the line is documented in Pidgin	ARSS Operator in the plane to communicate with pilot	Immediately

QA Management Reports Table
 QAPP Worksheet #33 (UFP QAPP Manual Section 4.2)

Type of Report	Frequency (daily, weekly monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (title and organizational affiliation)	Report Recipient(s) (title and organizational affiliation)
Brief Report	If needed, once per day of the response mission / site / incident	Within the same day	John Martin, EPA Jill Taylor, EPA Lyndsey Nguyen, EPA	Region 6 Lead OSC Region 6 Manager CMAD Management
Draft Report	One per day of the response mission / site / incident	Within 24 hours after response concluded.	John Martin, EPA Jill Taylor, EPA Lyndsey Nguyen, EPA	Region 6 Lead OSC Region 6 Manager CMAD Management
Final Report	One per response mission / site / incident	Within 24 hours after Draft Report comments.	John Martin, EPA Jill Taylor, EPA Lyndsey Nguyen, EPA	Region 6 Lead OSC Region 6 Manager CMAD Management
QAPP	One per response mission / site / incident	30 Days from initial day of response	John Martin, EPA Jill Taylor, EPA Lyndsey Nguyen, EPA	Region 6 Lead OSC Region 6 EU CMAD Management

Verification (Step I) Process Table
 QAPP Worksheet #34 (UFP-QAPP Manual Section 5.2.1)

Verification Input	Description	Internal / External	Responsible for Verification (name, organization)
FTIR Operational	Blue light verification—verifying the internal checks successfully completed (Zero Phase Displacement check is synced with the LASER)	Internal	Operator--Jimmy Crisp, ARSS
IRLS Operational	Red Light verification—verifying the internal checks successfully completed (prism angular velocity check, temperature check, and resolution check)	Internal	Operator--Jimmy Crisp, ARSS
MSIC Operational	Power-up verification to ensure internal communications are operating correctly	Internal	Operator--Jimmy Crisp, ARSS
Oblique Operational	Verify start up is working correctly	Internal	Operator--Jimmy Crisp, ARSS
MSIC Image Quality	When data is processed on the plane, the data is pulled through the satellite to the ground crew. The data is this looked at for quality of the image. Geospatial assessment of orthorectification is conducted.	External	Brian Dess, DPDS
Oblique Image Quality	When data is processed on the plane, the data is pulled through the satellite to the ground crew. The data is this looked at for quality of the image.	External	Brian Dess, DPDS
FTIR Spectrums	When data is processed on the plane, the data is pulled through the satellite to the ground crew. The data is then looked at spectrally at the absorption peaks. The chemical identified is compared to the images and site conditions to determine if the chemical detected makes sense for the situation. Chemical identified and concentrations are coordinated to the Region. Comparison of ground detection vs. air detections is conducted for decision making purposes.	External	Robert Kroutil, DPDS
IRLS Images Quality	When data is processed on the plane, the data is pulled through the satellite to the ground crew. The data is this looked at for quality of the image including IR content and geospatial registration	External	Dave Miller, DPDS

Validation (Steps IIa and IIb) Process Table
 QAPP Worksheet #35 (UFP-QAPP Manual Section 5.2.2) --

Step IIa / IIb	Validation Input	Description	Responsible for Validation (name, organization)
IIb	Laboratory Initial Checks	Equipment is checked before installation on plane	Mark Thomas, Kalman Robert Kroutil, Kalman
IIb	FTIR Post-Data Collection	Manual "spot verification" from the spectroscopist to validate detections by algorithm (i.e. pattern recognition) and natural background features	Mark Thomas, Kalman Robert Kroutil, Kalman
IIb	IRLS	Visual Image quality inspection by spectroscopist	Mark Thomas, Kalman Robert Kroutil, Kalman
IIb	MSIC	Images are geo-rectified and plotted onto Google Earth to visually verify images are positioned correctly	Brian Dess, Kalman

Validation (Steps IIa and IIb) Summary Table
 QAPP Worksheet #36 (UFP-QAPP Manual Section 5.2.2)

Step IIa / IIb	Matrix being Analyzed	Type of Parameter	Parameters	Validation Criteria	Data Validator (title and organizational affiliation)
IIa	Column of Air	Orientation of sensor	Total Pitch	Less than 6 degrees	Dave Miller, Kalman
IIa	Column of Air	Orientation of sensor	Pitch Deviation	Less than 10 mrads/sec	Dave Miller, Kalman
IIa	Column of Air	Orientation of sensor	Roll	Less than 5 degrees	Dave Miller, Kalman
IIa	Column of Air	Orientation of sensor	Heading	Less than 5 degrees	Dave Miller, Kalman
IIa	Column of Air	Orientation of sensor	Altitude	2800 feet +/- 100 ft	Dave Miller, Kalman
IIa	Column of Air	Orientation of sensor	Velocity	110 knots +/- 5 knots	Dave Miller, Kalman

Usability Assessment
QAPP Worksheet #37 (UFP-QAPP Manual Section 5.2.3)

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:

ASPECT will work with the OSC/customer to determine if data of known and documented quality are fit for their intended use. The OSC/customer will be notified of any limitations of the usability of the data. The customer will determine the "usability" of the information provided.

No formal usability assessment is performed; however, an in-house data review is performed to ensure that data have been calculated, recorded and transmitted correctly. Examples include checking for transcription and calculation errors. Data will undergo an analyst review and a peer review prior to submission to the EPA.

ASPECT collects screening data only and will not undergo the standard internal reviews and validation required by the Quality Management Plan. Once passed to EPA, the results of the analysis may be validated by Regional QA managers or third-party staff using their validation processes.

Describe the evaluative procedures used to assess overall measurement error associated with the project:

N/A

Identify the personnel responsible for performing the usability assessment:

EPA OSC/customer determines the usability based upon us informing them of the limitations and caveats of the techniques

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:

N/A—usability is determined by the OSC/customer

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/4/2021 7:52:26 PM
To: Delgado, Eric [Delgado.Eric@epa.gov]; Moore, Gary [moore.gary@epa.gov]; Loesel, Matthew [loesel.matthew@epa.gov]; brian.fontenot@la.gov; daniel.lambert@la.gov; karen.price2@la.gov; Shaikh, Taimur [Shaikh.Taimur@epa.gov]; Roff, Nicholas [Roff.Nicholas@epa.gov]; Nguyen, Lyndsey [Nguyen.Lyndsey@epa.gov]; Carroll, Craig [Carroll.Craig@epa.gov]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Subject: ASPECT Report from 03Sept
Attachments: ASPECT Summary - Hurricane Ida September 3 2021.docx

Hello everyone,

The ASPECT plane is currently wheels down in Baton Rouge for refueling and data uploading. We covered a whopping 23 data collection runs this morning! I haven't done a full accounting yet, but I think that covers something like 13 sites.

I've attached the draft report for yesterday's mission. All of the data from yesterday's mission should be up on the FTP site.

Please let me know if there is any other information that we can provide you with.

Thank you!

Jill

Jill Taylor
Atmospheric Scientist, ASPECT
CBRN Consequence Management Advisory Division
Environmental Protection Agency
1201 Elm St., Dallas, TX 75270
Work Cell: 214-406-9896

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/5/2021 5:36:38 PM
To: Delgado, Eric [Delgado.Eric@epa.gov]; Moore, Gary [moore.gary@epa.gov]; Loesel, Matthew [loesel.matthew@epa.gov]; brian.fontenot@la.gov; daniel.lambert@la.gov; karen.price2@la.gov; Shaikh, Taimur [Shaikh.Taimur@epa.gov]; Roff, Nicholas [Roff.Nicholas@epa.gov]; Nguyen, Lyndsey [Nguyen.Lyndsey@epa.gov]; Carroll, Craig [Carroll.Craig@epa.gov]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Subject: ASPECT Report 04Sept
Attachments: ASPECT Summary - Hurricane Ida 4 September 2021 V2.docx

Hello everyone,

Attached is the ASPECT Summary Report for the flights yesterday, September 4th.

Please let me know if you have any questions.

Thanks!
Jill

From: Taylor, Jillianne
Sent: Sunday, September 5, 2021 12:13 AM
To: Delgado, Eric <Delgado.Eric@epa.gov>; Moore, Gary <moore.gary@epa.gov>; Loesel, Matthew <loesel.matthew@epa.gov>; brian.fontenot@la.gov; daniel.lambert@la.gov; karen.price2@la.gov; Shaikh, Taimur <Shaikh.Taimur@epa.gov>; Roff, Nicholas <Roff.Nicholas@epa.gov>; Nguyen, Lyndsey <Nguyen.Lyndsey@epa.gov>; Carroll, Craig <Carroll.Craig@epa.gov>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Subject: ASPECT Plan for 05Sept

Hello Everyone,

ASPECT covered 23 facilities today! This was a huge data collection day for us. We did a data upload during the refueling stop in the afternoon. The data should all be available on the FTP site in the morning – the afternoon data might be a bit delayed because it will still have to be processed tomorrow morning, but the file size is much smaller so it shouldn't take too long to sift through. We'll send you the report when we have all of the files – it is mostly finished, we just have a few placeholders for the afternoon data that we need to fill in.

I talked to Gary a bit this afternoon about LDEQ's goals for us to finish. We made great progress today, and I think that it is possible for us to get all of the facilities covered in two days. There is a potential roadblock on the horizon – it looks like rain is forecast for the area starting Monday. There is another tropical depression heading towards the area that might settle in for a few days.

With that in mind, we'd like to propose a few options to try to cover as many of the sites as possible tomorrow:

- 1) Rather than hitting all of the sites twice, we do one data collection pass over each site
- 2) LDEQ takes another look at their priority list and drops a few of the facilities that they are not as interested in
- 3) We focus on making sure that we get full coverage of the remaining Tier 1 priority sites, and then get as many of the remaining Tier 2 sites as we can

Please let us know what you think the best course of action might be. We plan to start the morning collecting the sites that are closest to the coast, then working our way across New Orleans. We are flexible, so please let us know if there is any change in priority.

I have attached our list of sites that have been covered (which includes our plan for tomorrow), and an example of the file that we will be using to match the oblique images to the facility.

Please let me know if you have any questions!

Thanks,
Jill

Jill Taylor
Atmospheric Scientist, ASPECT
CBRN Consequence Management Advisory Division
Environmental Protection Agency
1201 Elm St., Dallas, TX 75270
Work Cell: 214-406-9896

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/5/2021 10:25:42 PM
To: Perovich, Gina [Perovich.Gina@epa.gov]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Subject: Latest ASPECT Report
Attachments: ASPECT Summary - Hurricane Ida 4 September 2021 V3.docx

Hi Gina!

Sorry I haven't been including you in the distribution list for these reports. I'll add you from here on out! Attached is our latest. After the Region has their XA person review, they'll mark it final and put it on the website.

Best,

Jill

Jill Taylor
Atmospheric Scientist, ASPECT
CBRN Consequence Management Advisory Division
Environmental Protection Agency
1201 Elm St., Dallas, TX 75270
Work Cell: 214-406-9896

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/5/2021 10:28:00 PM
To: Turville Rick [Rick.Turville@kalmancoinc.com]; mark [mark@spectralsystemsglobal.com]
Subject: Updated updated 04Sept report
Attachments: ASPECT Summary - Hurricane Ida 4 September 2021 V3.docx

Thank you for going back and adding the ammonia detections to the last report! I've attached the reviewed/edited version after the Region's public affairs people had a go. One thing they seem to prefer is September 4, 2021, rather than 4 September, 2021. Seems nit-picky to me, but guess they have their reasons.

Message

From: Taylor, Jillianne [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=50944BD17ADB440D98651290972C7224-TAYLOR, JIL]
Sent: 9/7/2021 12:21:18 AM
To: Delgado, Eric [Delgado.Eric@epa.gov]; Moore, Gary [moore.gary@epa.gov]; Loesel, Matthew [loesel.matthew@epa.gov]; brian.fontenot@la.gov; daniel.lambert@la.gov; karen.price2@la.gov; Shaikh, Taimur [Shaikh.Taimur@epa.gov]; Roff, Nicholas [Roff.Nicholas@epa.gov]; Nguyen, Lyndsey [Nguyen.Lyndsey@epa.gov]; Carroll, Craig [Carroll.Craig@epa.gov]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Perovich, Gina [Perovich.Gina@epa.gov]
Subject: ASPECT Report for 05 Sept
Attachments: ASPECT Summary - Hurricane Ida 5 September 2021.docx

Good evening everyone,

Please find attached the ASPECT Report from yesterday's mission. Contingent on the weather forecast, we plan to return to the New Orleans area tomorrow morning to resume surveillance of all the facilities that have only been covered once so far.

Please let me know if you have any questions.

Thank you,
Jill

Jill Taylor
Atmospheric Scientist, ASPECT
CBRN Consequence Management Advisory Division
Environmental Protection Agency
1201 Elm St., Dallas, TX 75270
Work Cell: 214-406-9896

Message

From: Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Sent: 9/2/2021 1:11:38 PM
To: Patrick.L.Richmond@uscg.mil; D05-DG-M-MIFCLANT-GEOINT@uscg.mil
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]
Subject: EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: Argenta, Edward [Argenta.Edward@epa.gov]
Sent: 9/8/2021 3:00:52 AM
To: McKown, Cody [cody.mckown@fema.dhs.gov]; Russell, Glen [glen.russell@fema.dhs.gov]; Mak, Morgan [morgan.mak@fema.dhs.gov]; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
CC: Honnellio, Anthony [Honnellio.Anthony@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; Pandey, Siddharth (CTR) [siddharth.pandey@associates.fema.dhs.gov]; Perovich, Gina [Perovich.Gina@epa.gov]; Jakabhazy, Elise [Jakabhazy.Elise@epa.gov]
Subject: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210908
Attachments: FEMA_20210908_EPA_Ida_Response.pptx

All,

EPA ASPECT plans to fly on 20210908. See the attached slide for details. We are targeting sites we only collected 1 data pass on to enhance our screening as well as additional targets of opportunity as we fly. This may be EPA's final day in the region unless additional POIs are identified by LA and shared/tasked to EPA OR if a new assignment comes in from another federal partner.

Respectfully,
Ed

Edward Argenta Jr
Branch Chief
Field Operations Branch
CBRN Consequence Management Advisory Division
Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R

From: Argenta, Edward
Sent: Tuesday, September 7, 2021 9:55 AM
To: 'McKown, Cody' <cody.mckown@fema.dhs.gov>; 'Russell, Glen' <glen.russell@fema.dhs.gov>; 'Mak, Morgan' <morgan.mak@fema.dhs.gov>; 'Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA)' <Kevin.N.Herr@uscg.mil>
Cc: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; 'Pandey, Siddharth (CTR)' <siddharth.pandey@associates.fema.dhs.gov>; Perovich, Gina <Perovich.Gina@epa.gov>; Jakabhazy, Elise <Jakabhazy.Elise@epa.gov>
Subject: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210907

All,

EPA ASPECT is inbound into the AOR. See the attached slide for details. We are targeting sites we only collected 1 data pass on to enhance our screening as well as additional targets of opportunity as we fly. If weather permits, we plan to hit the coastline first then go counterclockwise along the eastern shore -> NOLA -> Mississippi River -> BTR.

Thanks,
Ed

Edward Argenta Jr
Branch Chief
Field Operations Branch

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Office of Emergency Management
Argenta.edward@epa.gov
Gov't Mobile: 202.843.4511
Office #: 202.564.4528
Office: WJC-N - B517R

From: Argenta, Edward
Sent: Monday, September 6, 2021 9:01 AM
To: McKown, Cody <cody.mckown@fema.dhs.gov>; Russell, Glen <glen.russell@fema.dhs.gov>; Mak, Morgan <morgan.mak@fema.dhs.gov>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Cc: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; Pandey, Siddharth (CTR) <siddharth.pandey@associates.fema.dhs.gov>; Perovich, Gina <Perovich.Gina@epa.gov>; Jakabhazy, Elise <Jakabhazy.Elise@epa.gov>
Subject: RE: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210906

All,

EPA ASPECT has scrubbed their mission planned for 20210906 due to the storms in the area and the forecast for later in the afternoon. We are returning back to Home Base – Addison, TX for the day/evening. We are watching weather for tomorrow (09/07/2021) as Ops may be impacted again. We'll provide an update around 0730 CST on 20210907 of our plans for the day.

Please let me know if you have any questions,
Ed

Edward Argenta Jr
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Office: WJC-N - B517R

From: Argenta, Edward
Sent: Monday, September 6, 2021 12:37 AM
To: McKown, Cody <cody.mckown@fema.dhs.gov>; Russell, Glen <glen.russell@fema.dhs.gov>; Mak, Morgan <morgan.mak@fema.dhs.gov>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Cc: R6 RRC <R6_RRC@epa.gov>; Delgado, Eric <Delgado.Eric@epa.gov>; Mekeel, Edward <mekeel.edward@epa.gov>; Fisher, Bray <fisher.kelsey@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Moore, Gary <moore.gary@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; Pandey, Siddharth (CTR) <siddharth.pandey@associates.fema.dhs.gov>; Perovich, Gina <Perovich.Gina@epa.gov>; Jakabhazy, Elise <Jakabhazy.Elise@epa.gov>
Subject: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210906

All,

Please find the attached summary of EPA ASPECT activities as of 20210905 related to our support to the Hurricane Ida response. Please note, the slide has changed and we have symbolized the dates we performed our initial screening of the LDEQ& EPA priority facilities. EPA ASPECT has 1 site remaining on our POI list and plans to perform additional data collects on high priority facilities or additional POIs on 09/06/2021. Weather may impact our operations on 09/06/2021.

Respectfully,
Ed

Edward Argenta Jr
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Argenta.edward@epa.gov
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Office: WJC-N - B517R

From: Argenta, Edward
Sent: Saturday, September 4, 2021 11:58 PM
To: 'McKown, Cody' <cody.mckown@fema.dhs.gov>; 'Russell, Glen' <glen.russell@fema.dhs.gov>
Cc: R6 RRC <R6_RRC@epa.gov>; Delgado, Eric <Delgado.Eric@epa.gov>; Mekeel, Edward <mekeel.edward@epa.gov>; Fisher, Bray <fisher.kelsey@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Moore, Gary <moore.gary@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; 'Pandey, Siddharth (CTR)' <siddharth.pandey@associates.fema.dhs.gov>; Perovich, Gina <Perovich.Gina@epa.gov>; Jakabhazy, Elise <Jakabhazy.Elise@epa.gov>
Subject: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210905

Please see the attached summary slide for 9/4 execution and 9/5 plan. We successfully screened 19 locations on 9/4 and will attempt to get to ~25 sites on 9/5.

Thanks,
Ed

Edward Argenta Jr
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Office: WJC-N - B517R

From: Argenta, Edward
Sent: Friday, September 3, 2021 11:14 PM
To: McKown, Cody <cody.mckown@fema.dhs.gov>; Russell, Glen <glen.russell@fema.dhs.gov>
Cc: R6 RRC <R6_RRC@epa.gov>; Delgado, Eric <Delgado.Eric@epa.gov>; Mekeel, Edward <mekeel.edward@epa.gov>; Fisher, Bray <fisher.kelsey@epa.gov>; Honnellio, Anthony <Honnellio.Anthony@epa.gov>; Moore, Gary <moore.gary@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; Pandey, Siddharth (CTR) <siddharth.pandey@associates.fema.dhs.gov>; Perovich, Gina <Perovich.Gina@epa.gov>
Subject: EPA ASPECT Mission Plan for Hurricane Ida Response - 20210904

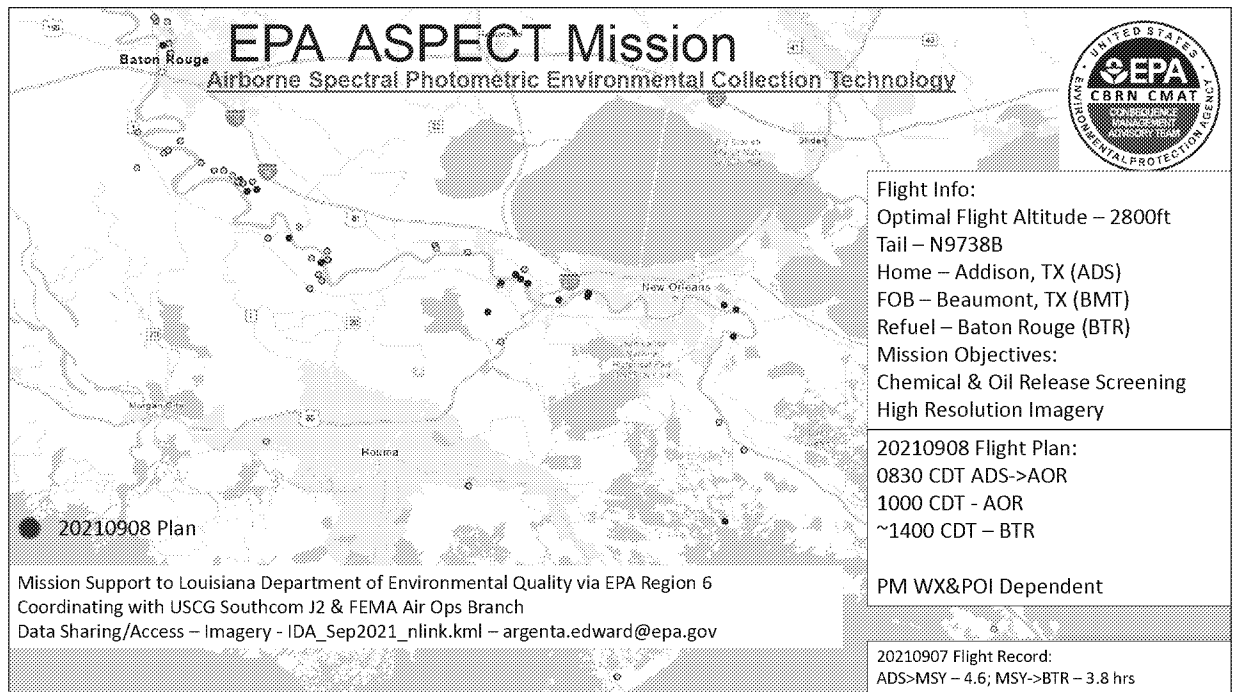
Hi All,

Please find the attached slide which summarizes what we accomplished to date (black icons), our plan for 20210904 (blue icons), and the remaining facilities to screen (red/orange icons). You'll find our planned flight times and record of

today's(20210903) flight hours. If you'd like this information in a different method/format or would benefit from a table of GPS locations for our planned activities please let me know.

Respectfully,
Ed

Edward Argenta Jr
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Office: WJC-N - B517R



Cessna 208B Super Cargo Master Platform - Addison, TX

Range/Aloft Time: Range 1,200 NM; Aloft Time 4 – 6 hours

- An Infrared Line Scanner to image chemical plumes
- A High Speed Infrared Spectrometer to identify and quantify the composition of the chemical plume in the ppb to ppm range
- Gamma-Ray Spectrometer for radiation detection and isotope identification
- Neutron Detection System for enhanced radiological detection
- High resolution digital cameras (aerial & oblique) with ability to rectify for inclusion into GIS
- Broadband Satellite Data System (SatCom)

Message

From: Turville Rick [Rick.Turville@kalmancoinc.com]
Sent: 9/8/2021 3:14:30 PM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]
CC: mark [mark@spectralsystemsglobal.com]
Subject: Draft ASPECT report for 7 September 2021
Attachments: ASPECT Summary - Hurricane Ida 7 September 2021.docx

Jill,
Please find attached the draft ASPECT report for 7 Sept 2021. If you have any questions please let us know.

R/ Rick

Rick Turville
Kalman and Company, Inc.
1000 Corporate Center, Suite 301
Stafford, VA 22554
540-628-7325 - Office
757-353-8302 - Cell

Airborne Spectral Photometric Environmental Collection Technology

ASPECT Air Quality Survey Baton Rouge, LA. September 7, 2021



ASPECT Mission Supporting:

Eric Delgado
On-Scene Coordinator
Delgado.Eric@epa.gov

Initial Mission Request

Brian Fontenot
Louisiana Department of Environmental
Quality

ASPECT TEAM

Jill Taylor
Chemical/Photometric Lead
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Tony Honnellio
Radiological Lead (Detail)
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Table of Contents

[TOC \o "1-3" \h \z \u]

Acronyms and Abbreviations

Alt	Altitude (in feet)
AGL	Above Ground Level
cm	centimeter
CDT	Central Daylight Time
DEM	Digital Elevation Model
ESF-10	Emergency Support Function #10 – Oil and Hazardous Materials Response
FEMA	Federal Emergency Management Agency
ft	feet
FTIR	Fourier Transform Infrared Spectrometer
FTP	File Transfer Protocol
igm	Spectral data format based on grams format
IR	Infrared
IRLS	Infrared Line Scanner
jpg	JPEG image format
kts	knots
mph	miles per hour
m/s	meters per second
MSIC	Digital photography file from the Imperx mapping camera
MSL	Mean Sea Level Altitude (in feet)
PAN	peroxyacetyl nitrate
Ppm	parts per million
RMP	Risk Management Plan

UTC

Universal Time Coordinated

Executive Summary

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On September 2nd, 2021, the State of Louisiana requested ESF-10 assistance through FEMA and Region 6 asked for the ASPECT plane to be deployed in support of the response to Hurricane Ida. The state wanted assistance monitoring facility emissions in the industrial area between Baton Rouge and New Orleans, where flaring is resulting in the visible emission of black smoke.

ASPECT was tasked to perform remote chemical sensing over target properties to screen for airborne chemicals and take high-resolution photos to provide situational awareness. Potential areas identified for monitoring included: East Baton Rouge, Ascension, Iberville, St. James, St. John, St. Charles, Jefferson, and Orleans. The system conducted one flight mission on 2 September 2021 including air monitoring survey collections over the target area with favorable weather conditions for all passes. Although two black plumes were visible over one of the sites, no major emissions were detected with the FTIR.

A continuation of the overall Baton Rouge facility survey was conducted on 3 September 2021. Two data collection flights were conducted which bracketed a Presidential temporary flight restriction not allowing any flight activity. A total of 12 active data collection passes were made covering 8 facilities with no chemical plumes or compounds being detected. Other than flares and isolated steam plumes, little process activity was noted in the data.

Flight 5 and 6 were conducted as part of survey operations conducted on 4 September 2021. A total of 17 facilities were surveyed. Ammonia was detected and confirmed at a maximum concentration of approximately 14 ppm in addition to ozone and peroxyacetyl nitrate. Analysis of IR imagery indicated that some facilities are showing hot process units.

ASPECT conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas. A total of 32 active data collection passes were made covering 21 facilities. Imagery collected within impact areas of the storm showed some oil sheen and releases to secondary containment. No compounds were detected on either mission.

Two data collection missions were conducted by ASPECT on 7 September 2021 with the primary focus to collect additional data over target surveyed on 5 September 2021 (St.

Bernard, Terrebonne, St. Charles, and St. James areas). A total of 16 data collection passes (2 test and 14 active) were made over about half of the target list. Weather conditions complicated the mission with numerous convective cells and low clouds in the area. No compounds were detected on either flight. conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas.

ASPECT Air Quality Survey

Hurricane IDA

Baton Rouge, LA

September 7, 2021

Background and Operational Overview

Hurricane Ida made landfall at 11:55 AM CDT Sunday, August 30 as a high-end category-4 hurricane, with maximum sustained winds of 150 mph. The storm moved ashore near Port Fourchon, Louisiana after a period of rapid intensification, tying for the fifth strongest landfalling continental US hurricane on record with Hurricane Laura of 2020, among three other hurricanes. Severe wind and large-scale flood damage have been reported to property and infrastructure in much of southeast Louisiana, including significant damage in New Orleans, Louisiana. In addition, Ida has caused widespread damage across the Mid-Atlantic and Northeast US.

On 2 September 2021, ASPECT was tasked to conduct a wide area air quality screening level assessment of areas populated with Risk Management Plan (RMP) sites and petrochemical facilities using the ASPECT system for detections of any airborne contaminants from ASPECT's 76 chemical detection library in the areas affected by Ida. The Region wanted to know if any detections were found, the location of the detection, and the concentration detected. Sites including Marathon Petroleum Company, Shell Norco Facility, and Phillips 66 pipeline site were surveyed. There were no chemical detections at the sites surveyed. Extremely slow satellite transmission speeds (possibly due to high bandwidth use by other first responders) resulted in long delays in data collection. Some chemical photos were pulled down during flight, with the majority needing to be pulled down with a more high-speed internet connection on the ground.

On 3 September 2021 ASPECT was tasked with a continuation of the general Baton Rouge area survey and conducted two flights. 8 locations in the Baton Rouge area were surveyed as part of two flights. A total of 12 active data collection passes were made covering 8 facilities with no chemical plumes or compounds being detected. Other than flares and isolated steam plumes, little process activity was noted in the data.

Two data collection flights were conducted on 4 September 2021 focusing on facilities south of Baton Rouge. A total of 29 active data collection passes were made covering 17 facilities. Analysis of IR imagery indicated that some facilities are showing hot process units. Ammonia was detected and confirmed at a maximum concentration of approximately 14 ppm.

ASPECT conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas. A total of 32 active data collection passes were made covering 21 facilities. Imagery collected within impact areas of the storm showed some oil sheen and releases to secondary containment. No compounds were detected on either mission.

Due to poor weather, ASPECT did not conduct any flight activities on 6 September 2021. ASPECT was tasked with two missions on 7 September consisting largely of revisiting facilities surveyed on 6 September 2021 for the purpose of collecting additional data.

Table 1. Sites Covered on 7 September 2021 Flights 9 and 10

Valero Refining - Meraux LLC - Meraux Refinery	29.930222	-89.944917	St. Bernard
Cornerstone Chemical Company	29.964722	-90.264722	Jefferson
Chalmette Refining LLC	29.937903	-89.969903	St. Bernard
Equilon Enterprises LLC - Norco Refinery	29.995372	-90.410167	St. Charles
BASF Corp - Geismar Site	30.18425	-91.002778	Ascension
Equilon Enterprises LLC dba Shell Oil Products US - Convent Refinery	30.107684	-90.890796	St. James
Occidental Chemical Corporation - Geismar Facility	30.18819	-90.98188	Ascension
St Rose Refinery LLC - St Rose Refinery	29.950875	-90.328497	St. Charles
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.422381	St. Charles
Roehm America LLC - MMA Plant	29.9575	-90.265833	Jefferson
Valero Refining - New Orleans LLC - St Charles Refinery	29.985781	-90.3955	St. Charles
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.409722	St. Charles
Stolthaven New Orleans, LLC - Braithwaite Facility	29.870919	-89.949339	Plaquemines
Formosa Plastics Corp Louisiana	30.501722	-91.185944	East Baton Rouge
Occidental Chemical Corp - Taft Plant	29.987222	-90.454722	St. Charles
Mosaic Fertilizer LLC - Faustina Plant	30.083914	-90.91345	St. James
NuStar Logistics LP - St James Terminal	30.030065	-90.843463	St. James
Dyno Nobel LA Ammonia LLC - Ammonia Production Facility	29.964789	-90.264625	Jefferson
Kemira Chemicals Inc	29.964722	-90.264722	Jefferson
PHILLIPS 66 PIPELINE LLC	29.923889	-90.482498	St. Charles

General Mission Objectives

Once granted access to fly over the sites, the following general mission objectives were employed in conducting data collection with ASPECT:

1. To capture an overall, situational awareness of the incident using aerial photography with:
 - Oblique camera—photos taken by hand from the view/position of the co-pilot, and
 - MSIC photos—advanced camera mounted underneath the plane for a top-down view of the designated sites.

2. To qualitatively locate and characterize any the visible and non-visible components of a plume, as well as any areas on fire:
 - Using the Infrared Line Scanner (IRLS)
3. To screen for the presence and location of specific chemicals within ASPECT's automated chemical detection library:
 - Using the Fourier Transform Infrared (FTIR) Spectrometer

Flight Conditions and Status

Weather and Site Conditions

Prior to each flight, an updated status of the current and forecasted weather, site conditions and any potential flight obstacles including radio towers impacting safety is assessed by the crew. A summary of the ground weather conditions during the missions can be found in Table 2 and 3.

**Table 2. Ground Weather for Baton Rouge, LA, Flight 9
7 September 2021**

Time	853	953	1053	1153	1253
Wind direction	202.5 degrees SSW	202.5 degrees SSW	202.5 degrees SSW	202.5 degrees SSW	270 degrees W
Wind speed	3.1 m/s (7.0 mph)	3.6 m/s (8.0 mph)	4.0 m/s (9.0 mph)	4.0 m/s (9.0 mph)	2.7 m/s (6.0 mph)
Temperature	23.9 C	25.6 C	28.3 C	30.0 C	31.7 C
Relative humidity	66	60	55	53	50
Dew point	17.2 C	17.8 C	18.3 C	19.4 C	20.0 C
Pressure	980.7 mb	980.4 mb	980.4 mb	980.0 mb	980.0 mb
Ceiling	Clear	Clear	Clear	Clear	Clear

**Table 3. Ground Weather for Baton Rouge, LA, Flight 10
7 September 2021**

Time	1353	1453	1553	1653	1753
Wind direction	270 degrees W	315 degrees NW	337.5 degrees NNW	0 degrees N	337.5 degrees NNW
Wind speed	4.5 m/s (10.0 mph)	4.0 m/s (9.0 mph)	4.0 m/s (9.0 mph)	6.3 m/s (14.0 mph)	4.0 m/s (9.0 mph)
Temperature	32.2 C	33.3 C	32.8 C	32.2 C	30.6 C
Relative humidity	52	51	49	40	45
Dew point	21.1 C	21.7 C	20.6 C	16.7 C	17.2 C
Pressure	980.0 mb	980.0 mb	980.0 mb	980.4 mb	980.7 mb
Ceiling	Clear	Clear	Few 4800 Ft	Clear	Clear

Data Results

The following data is provided as a summary analysis. All data products are available for the Region to access on a shared FTP site. For a complete list of available products, see Appendix A. The data collected during these missions included a flight path summary, IRLS images, FTIR chemical identification and quantification, high resolution MSIC photos, and oblique photos.

Flight Paths

Wide, slow turns are required to be made in between runs to keep the instruments stable. The blue lines indicate the flight path while the green lines indicate the specific sections of the flight where chemical data was collected and processed. On Flight 1 the St. Bernard, Terrebonne, St. Charles, and St. James area was surveyed, and the flight path is shown in Figure 1 and 2.



Figure 1. Data Collection Flight Path,
St. Bernard, Terrebonne, St. Charles, and St. James, Flight 9,
7 September 2021



Figure 2. Data Collection Flight Path,
St. Bernard, Terrebonne, St. Charles, and St. James, Flight 10,
7 September 2021

Line Scanner Data Results

A total of 16 data collection runs (2 test and 14 active) were made over the target facilities and an infrared line scanner image was generated for each collection run. Figure 4 shows a 3-band infrared image collected over a facility near Garyville. No significant features are evident in the image (such as flare or steam vents) and no discharges can be seen leaving the facility.



Figure 4. Three band IR image, Garyville Area, Run 11, Flight 9, 7 September 2021

FTIR Data Results

FTIR spectral data at a resolution of 16 wavenumbers was collected for each run. ASPECT uses an automated detection algorithm to permit compounds to be automatically analyzed while the aircraft is in flight. Seventy-six chemical compounds are included in the airborne

algorithm library (the list is provided in Appendix B, Table 1). In addition, collected data was also manually quality checked against a collection of published library spectra for each chemical detected.

ASTECT did not detect any programmed compounds (those found in Appendix B, Table 1) as part of the mission over the target areas on the two flights conducted on 7 September 2021. Details of the monitoring results can be found in Table 4 and 5.

**Table 4. Chemical Results Summary
St. Bernard, Terrebonne, St. Charles, and St. James Areas, Flight 9**

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
1	2021-09-07	14:06:47	Test	Test
2		15:34:20	ND	ND
3		16:05:22	ND	ND
4		16:26:25	ND	ND

**Table 5. Chemical Results Summary
St. Bernard, Terrebonne, St. Charles, and St. James Areas, Flight 10**

Pass	Date	Time (UTC)	Chemical	Max Concentration (ppm)
1	2021-09-07	19:03:23	Test	Test
2		19:22:25	ND	ND
3		19:52:24	ND	ND
4		19:54:57	ND	ND
5		20:11:16	ND	ND
6		20:12:24	ND	ND
7		20:28:48	ND	ND
8		20:41:54	ND	ND
9		20:54:50	ND	ND
10		21:06:26	ND	ND
11		21:16:22	ND	ND
12		21:30:25	ND	ND

Aerial Photography Results

A full set of high-resolution aerial digital photography were collected as part of each data collection pass. Weather conditions over the survey were challenging with both low ceiling and convective activity within the survey areas. These conditions made some images marginal. Figure 5 shows a representative aerial image collected over a refinery in the Garyville area. No significant damage or activity is evident in the image. Figure 6 shows

an oblique image of a flooded tank battery near Port Fourchon. Although flooded, no product appears to be leaking from the facility.

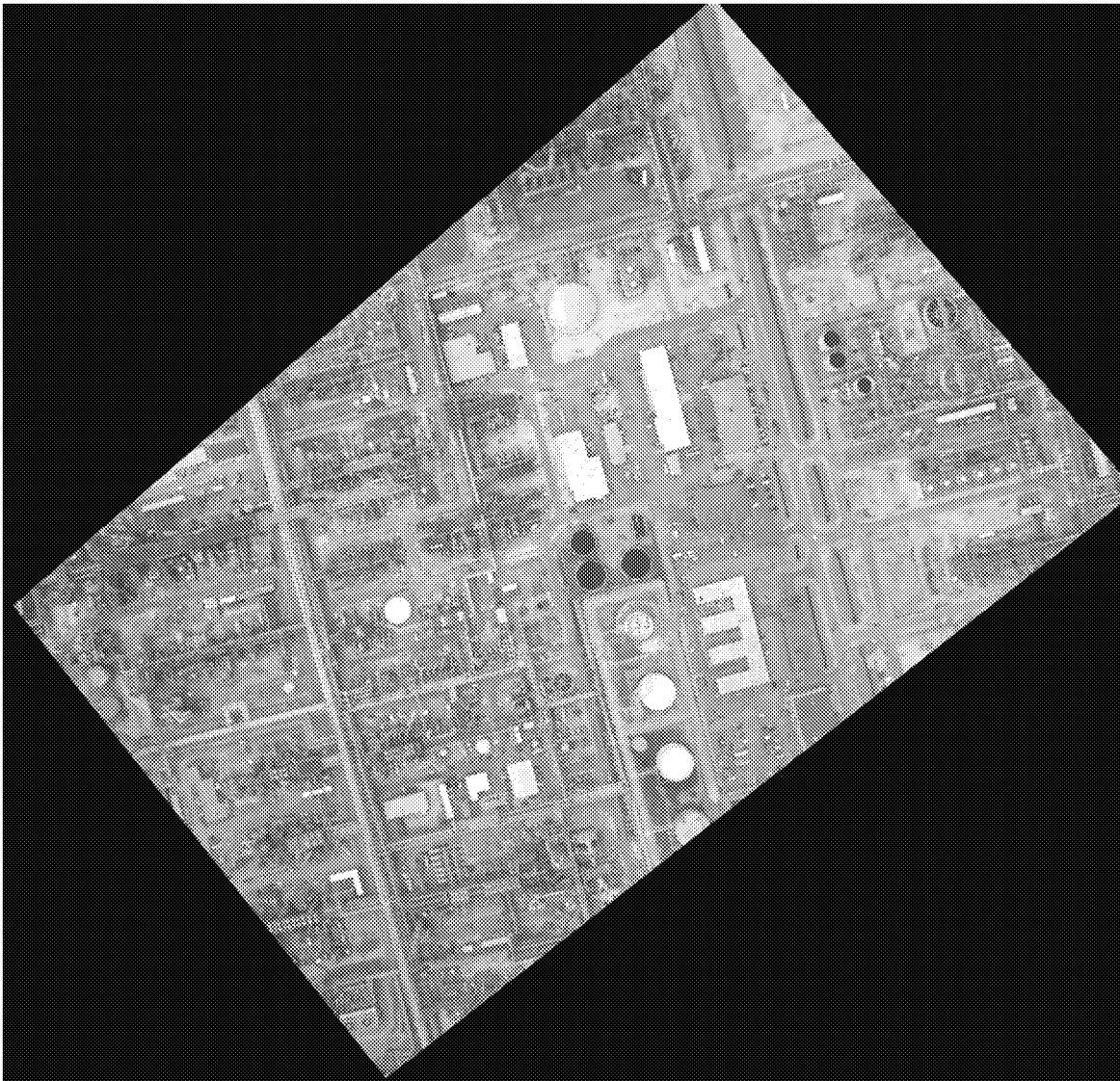


Figure 5. MSIC image of the Garyville, LA Refinery, Flight 10, 7 September 2021

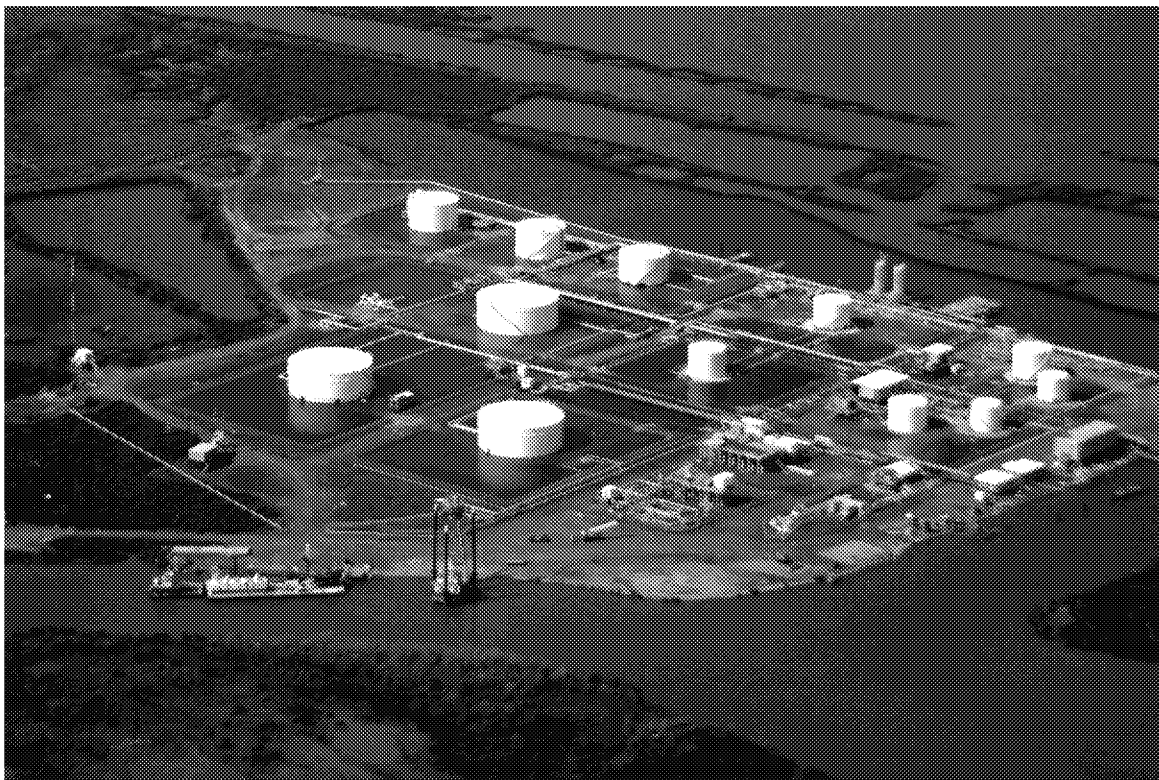


Figure 6. Oblique photo of a flooded tank battery. Flight 9, 7 September 2021

Conclusion

Two data collection missions were conducted by ASPECT on 7 September 2021 with the primary focus to collect additional data over target surveyed on 5 September 2021 (St. Bernard, Terrebonne, St. Charles, and St. James areas). A total of 16 data collection passes (2 test and 14 active) were made over about half of the target list. Weather conditions complicated the mission with numerous convective cells and low clouds in the area. No compounds were detected on either flight. conducted two data collection missions on 5 September 2021 with the focus being facilities in St. Bernard, Terrebonne, St. Charles, and St. James areas.

Appendix A: File Names of Data Collected During Flight

St. Bernard, Terrebonne, St. Charles, and St. James Areas, Flight 9, 7 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	14:06:47	5147	150	20210907140653888.jpg 20210907140700247.jpg 20210907140706596.jpg	20210907_140651_A.igm	2021_09_07_14_06_51_R_01 TA=25.0;TB=45.5;Gain=3	
2	15:34:20	2563	105	20210907153426146.jpg 20210907153432495.jpg 20210907153438860.jpg 20210907153445210.jpg 20210907153451568.jpg 20210907153457918.jpg 20210907153505181.jpg 20210907153511546.jpg	20210907_153423_A.igm 20210907_153502_A.igm	2021_09_07_15_34_24_R_02 TA=16.0;TB=36.0;Gain=3	
3	16:05:22	2534	108	20210907160528252.jpg 20210907160534601.jpg 20210907160540960.jpg	20210907_160525_A.igm	2021_09_07_16_05_26_R_03 TA=25.1;TB=45.0;Gain=3	
4	16:26:25	2063	107	20210907162632040.jpg 20210907162637485.jpg 20210907162642033.jpg 20210907162647478.jpg 20210907162652923.jpg	20210907_162628_A.igm	2021_09_07_16_26_30_R_04 TA=26.0;TB=46.0;Gain=3	

St. Bernard, Terrebonne, St. Charles, and St. James Areas, Flight 10, 7 September 2021

Run#	Time (UTC)	Altitude (MSL)	Velocity (knots)	MSIC Data Files	FTIR Data Files	IRLS Data Files	Gamma Files
1	19:03:23	2589	114	20210907190329891.jpg 20210907190335335.jpg 20210907190340787.jpg	20210907_190327_A.igm	2021_09_07_19_03_28_R_01 TA=25.9;TB=46.7;Gain=3	
2	19:22:25	2572	102	20210907192232007.jpg 20210907192237452.jpg 20210907192242896.jpg 20210907192248344.jpg 20210907192253803.jpg 20210907192259248.jpg	20210907_192229_A.igm	2021_09_07_19_22_30_R_02 TA=26.0;TB=46.2;Gain=3	
3	19:52:24	2535	106	20210907195230529.jpg 20210907195235973.jpg 20210907195241418.jpg 20210907195246872.jpg 20210907195252316.jpg 20210907195257760.jpg 20210907195303220.jpg 20210907195308665.jpg 20210907195314109.jpg 20210907195319553.jpg	20210907_195227_A.igm 20210907_195306_A.igm	2021_09_07_19_52_29_R_03 TA=25.9;TB=46.0;Gain=3	
4	19:54:57	2507	104	20210907195503059.jpg 20210907195508503.jpg 20210907195513947.jpg 20210907195519392.jpg 20210907195524836.jpg 20210907195530296.jpg 20210907195535740.jpg	20210907_195501_A.igm	2021_09_07_19_55_01_R_04 TA=26.0;TB=46.0;Gain=3	

5	20:11:16	2576	105	20210907201122663.jpg 20210907201128108.jpg 20210907201133568.jpg	20210907_201120_A.igm	2021_09_07_20_11_21_R_05 TA=26.0;TB=46.0;Gain=3	
6	20:12:24	2549	102	20210907201230757.jpg 20210907201236202.jpg 20210907201238932.jpg	20210907_201227_A.igm	2021_09_07_20_12_29_R_06 TA=26.0;TB=46.0;Gain=3	
7	20:28:48	2563	106	20210907202854916.jpg 20210907202900361.jpg 20210907202905805.jpg 20210907202911250.jpg 20210907202916710.jpg 20210907202922154.jpg 20210907202927604.jpg 20210907202933048.jpg 20210907202938492.jpg 20210907202943937.jpg 20210907202949381.jpg 20210907202954841.jpg 20210907203000286.jpg 20210907203005730.jpg	20210907_202851_A.igm 20210907_202932_A.igm	2021_09_07_20_28_54_R_07 TA=25.1;TB=44.9;Gain=3	
8	20:41:54	2593	110	20210907204200238.jpg 20210907204205682.jpg 20210907204211142.jpg 20210907204216587.jpg	20210907_204156_A.igm	2021_09_07_20_41_58_R_08 TA=27.3;TB=47.1;Gain=3	
9	20:54:50	2552	105	20210907205456491.jpg 20210907205501935.jpg 20210907205507380.jpg 20210907205512825.jpg 20210907205518285.jpg 20210907205523730.jpg	20210907_205453_A.igm	2021_09_07_20_54_55_R_09 TA=18.3;TB=38.5;Gain=3	
10	21:06:26	2544	101	20210907210632840.jpg 20210907210638285.jpg 20210907210643729.jpg 20210907210649189.jpg 20210907210654634.jpg 20210907210700078.jpg 20210907210705523.jpg 20210907210710967.jpg 20210907210716427.jpg 20210907210721871.jpg	20210907_210630_A.igm 20210907_210710_A.igm	2021_09_07_21_06_32_R_10 TA=25.6;TB=45.5;Gain=3	
11	21:16:22	2578	103	20210907211628411.jpg 20210907211633863.jpg 20210907211639307.jpg 20210907211644767.jpg 20210907211650212.jpg 20210907211655656.jpg 20210907211701101.jpg 20210907211706545.jpg 20210907211711993.jpg 20210907211717439.jpg 20210907211722899.jpg	20210907_211625_A.igm 20210907_211705_A.igm	2021_09_07_21_16_27_R_11 TA=23.5;TB=43.5;Gain=3	
12	21:30:25	2570	108	20210907213031849.jpg 20210907213037293.jpg 20210907213042753.jpg	20210907_213029_A.igm	2021_09_07_21_30_31_R_12 TA=23.0;TB=42.8;Gain=3	

**Appendix B: Priority Sites Provided by EPA Region 6 & Louisiana Department of
Environmental Quality**

Facility_Name	Latitude	Longitude	Parish
Deltech LLC - Baton Rouge Facility	30.552892	-91.200536	East Baton Rouge
ExxonMobil Chemical Co - Baton Rouge Plastics Plant	30.551419	-91.175611	East Baton Rouge
ExxonMobil Baton Rouge Chemical Plant	30.484336	-91.169644	East Baton Rouge
Marathon Petroleum Co LP	30.068394	-90.596364	St. John the Baptist
Westlake Vinyls Co LP	30.209167	-91.017222	Ascension
Valero Refining - Meraux LLC - Meraux Refinery	29.930222	-89.944917	St. Bernard
Cornerstone Chemical Company	29.964722	-90.264722	Jefferson
Chalmette Refining LLC	29.937903	-89.969903	St. Bernard
ExxonMobil Chemical Company - Baton Rouge Chemicals North Plant	30.50465	-91.173219	East Baton Rouge
Equilon Enterprises LLC - Norco Refinery	29.995372	-90.410167	St. Charles
The Dow Chemical Company - Louisiana Operations	30.313927	-91.240586	Iberville
Rubicon LLC - Geismar Facility	30.20139	-91.01222	Ascension
BASF Corp - Geismar Site	30.18425	-91.002778	Ascension
Union Carbide Corp - St. Charles Plant	29.982289	-90.455622	St. Charles
Phillips 66 Co - Alliance Refinery	29.68406	-89.98145	Plaquemines
Axiall LLC - Plaquemine Facility	30.267167	-91.184258	Iberville
ExxonMobil Fuels & Lubricants Co - Baton Rouge Refinery	30.484392	-91.169444	East Baton Rouge
Equilon Enterprises LLC dba Shell Oil Products US - Convent Refinery	30.107684	-90.890796	St. James
Marathon Petroleum Company LP - Louisiana Refining Division - Garyville Refinery	30.061322	-90.593528	St. John the Baptist
BASF Corp - Zachary Site	29.547603	-90.523231	East Baton Rouge
Occidental Chemical Corporation - Geismar Facility	30.18819	-90.98188	Ascension
St Rose Refinery LLC - St Rose Refinery	29.950875	-90.328497	St. Charles
ExxonMobil Chemical Co - Baton Rouge Polyolefins Plant	30.56215	-91.20387	East Baton Rouge
Shell Chemical LP - Norco Chemical Plant West Site	30.004925	-90.422381	St. Charles
NOVA Chemicals Olefins LLC - Geismar Ethylene Plant	30.230619	-91.052884	Ascension
Roehm America LLC - MMA Plant	29.9575	-90.265833	Jefferson
Valero Refining - New Orleans LLC - St Charles Refinery	29.985781	-90.3955	St. Charles
Shell Chemical LP - Norco Chemical Plant - East Site	29.995556	-90.409722	St. Charles

BASF Corp - North Geismar Site	30.20594	-90.99195	Ascension
Stolthaven New Orleans, LLC - Braithwaite Facility	29.870919	-89.949339	Plaquemines
Shintech Louisiana LLC - Shintech Plaquemine Plant	30.273611	-91.173333	Iberville
Denka Performance Elastomer LLC	30.053928	-90.524792	St. John the Baptist
Formosa Plastics Corp Louisiana	30.501722	-91.185944	East Baton Rouge
DuPont Specialty Products USA LLC - Pontchartrain Site	30.05388	-90.52472	St. John the Baptist
Occidental Chemical Corp - Taft Plant	29.987222	-90.454722	St. Charles
Syngenta Crop Protection LLC - St Gabriel Plant	30.246728	-91.103508	Iberville
Mosaic Fertilizer LLC - Faustina Plant	30.083914	-90.91345	St. James
Mosaic Fertilizer LLC - Uncle Sam Plant	30.037222	-90.8275	St. James
LBC Baton Rouge LLC - Sunshine Terminal	30.294444	-91.148333	Iberville
Occidental Chemical Corporation - Convent Facility	30.055885	-90.830594	St. James
TOTAL Petrochemicals & Refining USA Inc - Carville Polystyrene Plant	30.229786	-91.073631	Iberville
Targa Midstream Services LLC	29.237034	-89.384977	Plaquemines
EnLink LIG Liquids LLC - Plaquemine Gas Processing Plant	30.236389	-91.241389	Iberville
EnLink LIG Liquids LLC - Gibson Gas Processing Plant	29.643056	-90.961944	Terrebonne
NuStar Logistics LP - St James Terminal	30.030065	-90.843463	St. James
Enterprise Gas Processing LLC - Norco Fractionation Plant	30.015411	-90.402958	St. Charles
Lone Star NGL Refinery Services LLC - Geismar Fractionation Plant	30.218889	-91.035833	Ascension
INEOS Oxide - A Division of INEOS Americas LLC	30.313889	-91.240278	Iberville
Discovery Producer Services LLC - Discovery Paradis Fractionation Plant	29.858889	-90.453333	St. Charles
Plains Marketing LP - St James Terminal	30.004341	-90.848449	St. James
Methanex USA Services LLC - Geismar Methanol Plant	30.206667	-91.020833	Ascension
Dyno Nobel LA Ammonia LLC - Ammonia Production Facility	29.964789	-90.264625	Jefferson
Kinder Morgan Liquids Terminals LLC - Geismar Methanol Terminal	30.205389	-91.023792	Ascension
South LA Methanol LP - St James Methanol Plant	30.039917	-90.863819	St. James
YCI Methanol Plant	29.97481	-90.86775	St. James
IGP Methanol LLC - Gulf Coast Methanol Complex	29.625453	-89.926611	Plaquemines
KMe St James Holdings LLC - Methanol Terminal	29.990919	-90.841239	St. James
Kemira Chemicals Inc	29.964722	-90.264722	Jefferson
PHILLIPS 66 PIPELINE LLC	29.923889	-90.482498	St. Charles
CF INDUSTRIES	30.08328	-90.957665	Ascension

Appendix C: ASPECT Systems

The US EPA ASPECT system collects airborne infrared (IR) images and chemical screening data from a safe distance over the site (about 3,000 ft AGL). The system consists of an airborne high-speed Fourier Transform Infra-Red (FTIR) spectrometer coupled with a wide-area IR Line Scanner (IRLS). The ASPECT IR systems can detect chemical compounds in both the 8-to-12-micron (800 to 1200 cm^{-1}) and 3 to 5 micron (2000 to 3200 cm^{-1}) regions. List of chemicals and detection limits are listed in Table 1. The 8 to 12 micron region is typically known as the atmospheric window region since the band is reasonably void of water and carbon dioxide influence. Spectrally, this region is used to detect carbon - non-carbon bonded compounds. The 3 to 5 micron region is also free of water and carbon dioxide but typically does not have sufficient energy for use. This band does show use in high-energy environments such as fires. The carbon - hydrogen stretch is very common in this region.

An Imperx mapping camera (29 mega pixels; mapping focal plane array) is concurrently operated as part of all chemical collections. These images are often digitally processed in lower resolution, so they can be transmitted via satellite communication. All imagery is geo-rectified using both aircraft attitude correction (pitch, yaw, and roll) and GPS positional information. Imagery can be processed while in flight or approximately 600 frames per hour can be processed once the data are downloaded from the aircraft. The high-resolution images (>20 MB each) are pulled from the ASPECT after the sortie and are available later.

All aerial photographic images collected by the ASPECT system are ortho-rectified and geospatially validated by the scientific reach back team. In general, this consists of conducting geo-registration using a USGS Digital Elevation Model (DEM) which promotes superior pixel computation and lessens topographic distortion. The image is checked by the team (using a Google Earth base map) for proper location and rotation.

Airborne radiological measurements are conducted using three fully integrated multi-crystal sodium iodide (NaI) RSX4 gamma ray spectrometers. Each RSX4 spectrometer contains four 4"x2"x16" doped NaI crystals each having an independent photomultiplier/spectrometer assembly. One RSX unit is configured with an additional upward NaI crystal utilized to provide real-time cosmic ray correction. Count and energy data from each crystal and pack is combined using a self-calibrating signal processor to generate a virtual detector output. All radiological spectrometer "packs" are further combined using a signal console controlled by the on-board central computer in the aircraft. Altitude correction data is provided by a radar altimeter with internal GPS systems within the packs serving as a backup. It should be noted that no radiological measurements were conducted on this mission.

Data is processed using automated algorithms onboard the aircraft with preliminary results being sent using a satellite system to the ASPECT scientific reach back team for QA/QC analysis. Upon landing, preliminary data results are examined and validated by the

scientific reach back team.

Table 1. ASPECT Automated Compounds

This table contains ASPECT's library of automated compounds.

Detection limits are for each chemical is found in parenthesis in units of parts per million (ppm)

Acetic Acid (2.0)	Cumene (23.1)	Isoprene (6.5)	Phosphine (8.3)
Acetone (5.6)	Diborane (5.0)	Isopropanol (8.5)	Phosphorus Oxychloride (2.0)
Acrolein (8.8)	1,1-Dichloroethene (3.7)	Isopropyl Acetate (0.7)	Propyl Acetate (0.7)
Acrylonitrile (12.5)	Dichloromethane (6.0)	MAPP (3.7)	Propylene (3.7)
Acrylic Acid (3.3)	Dichlorodifluoromethane (0.7)	Methyl Acetate (1.0)	Propylene Oxide (6.8)
Allyl Alcohol (5.3)	1,1-Difluoroethane (0.8)	Methyl Acrylate (1.0)	Silicon Tetrafluoride (0.2)
Ammonia (2.0)	Difluoromethane (0.8)	Methyl Ethyl Ketone (7.5)	Sulfur Dioxide (15)
Arsine (18.7)	Ethanol (6.3)	Methanol (5.4)	Sulfur Hexafluoride (0.07)
Bis-Chloroethyl Ether (1.7)	Ethyl Acetate (0.8)	Methylbromide (60)	Sulfur Mustard (6.0)
Boron Tribromide (0.2)	Ethyl Acrylate (0.8)	Methylene Chloride (1.1)	Sulfuryl Fluoride (1.5)
Boron Trifluoride (5.6)	Ethyl Formate (1.0)	Methyl Methacrylate (3.0)	Tetrachloroethylene (10)
1,3-Butadiene (5.0)	Ethylene (5.0)	MTEB (3.8)	1,1,1-Trichloroethane (1.9)
1-Butene (12.0)	Formic Acid (5.0)	Naphthalene (3.8)	Trichloroethylene (2.7)
2-Butene (18.8)	Freon 134a (0.8)	n-Butyl Acetate (3.8)	Trichloromethane (0.7)
Carbon Tetrachloride (0.2)	GA (Tabun) (0.7)	n-Butyl Alcohol (7.9)	Triethylamine (6.2)
Carbonyl Fluoride (0.8)	GB (Sarin) (0.5)	Nitric Acid (5.0)	Triethylphosphate (0.3)
Carbon Tetrafluoride (0.1)	Germane (1.5)	Nitrogen Mustard (2.5)	Trimethylamine (9.3)
Chlorodifluoromethane (0.6)	Hexafluoroacetone (0.4)	Nitrogen Trifluoride (0.7)	Trimethyl Phosphite (0.4)
Chloromethane (12)	Isobutylene (15)	Phosgene (0.5)	Vinyl Acetate (0.6)

Message

From: Honnellio, Anthony [Honnellio.Anthony@epa.gov]
Sent: 9/2/2021 1:44:55 PM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) [Patrick.L.Richmond@uscg.mil]; D05-DG-M-MIFCLANT-GEOINT [D05-DG-M-MIFCLANT-GEOINT@uscg.mil]
CC: Argenta, Edward [Argenta.Edward@epa.gov]; Taylor, Jillianne [Taylor.Jillianne@epa.gov]; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) [Ernesto.Muniz@uscg.mil]; Leclaire, Matthew J CIV USCG MIFC LANT (USA) [Matthew.J.Leclaire@uscg.mil]; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) [Kevin.N.Herr@uscg.mil]
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Thank you for your timely response Chief Warrant Officer Richmond,

The ASPECT Team is looking forward to the opportunity to collaborate and can grant permission for the current mission's data to reside on your stormsite. That may change depending on our customer, but likely would not be an issue in the future then either. We have our pre-flight safety briefing in ~1 hour and wheels up shortly thereafter. I'll be reaching out to LT Herr (with a cc to MIFCLANT) shortly. Thank you again for your assistance, and please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

From: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>
Sent: Thursday, September 2, 2021 9:26 AM
To: Honnellio, Anthony <Honnellio.Anthony@epa.gov>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>; MunizTirado, Ernesto CDR USCG MIFC LANT (USA) <Ernesto.Muniz@uscg.mil>; Leclaire, Matthew J CIV USCG MIFC LANT (USA) <Matthew.J.Leclaire@uscg.mil>; Herr, Kevin N LT USCG SOUTHCOM JIATFS J2 (USA) <Kevin.N.Herr@uscg.mil>
Subject: RE: EPA ASPECT Opening Up Lines of Communication

Mr. Honnellio,

LT Kevin Herr (CC'd) is running the ISR Collections for Hurricane Ida response. I believe he is the best POC for coordination of flights and coordination for dissemination of data to the appropriate preventions teams.

If able, our team would like to also been copied on any dissemination to the above MIFCLANT Distro email. Also would like permission to hang any products on our stormsite for larger distribution to interested customers. Let me know if that will be an issue

Regards,

CWO3 Patrick L. Richmond
Maritime Intelligence Fusion Center, Atlantic

W: 757-492-4474
C: 508-564-2979

Warning: This document is FOR OFFICIAL USE ONLY (FOUO). It contains information that may be exempt from public release under the Freedom of Information Act (5 U.S.C. 552). It is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with DHS policy relating to FOUO information and is not to be released to the public or other personnel who do not have a valid "need-to-know" without prior approval.

From: Honnellio, Anthony <Honnellio.Anthony@epa.gov>
Sent: Thursday, September 2, 2021 9:12 AM
To: Richmond, Patrick L CWO-3 USCG HQS (USA) <Patrick.L.Richmond@uscg.mil>; D05-DG-M-MIFCLANT-GEOINT <D05-DG-M-MIFCLANT-GEOINT@uscg.mil>
Cc: Argenta, Edward <Argenta.Edward@epa.gov>; Taylor, Jillianne <Taylor.Jillianne@epa.gov>
Subject: [Non-DoD Source] EPA ASPECT Opening Up Lines of Communication

Good Day,

The U.S. Environmental Protection Agency's (EPA) Airborne Spectrographic Photometric Environmental Collection Technology (ASPECT - <https://www.epa.gov/emergency-response/aspect>) airplane is anticipating a Mission Assignment (MA) to fly in LA. ASPECT provides the capability to provide near real-time screening data for chemical and radiological hazards as well as NADIR/Oblique photometric data. We will be running test flights this morning, and would like to initiate data sharing with USGS HDDS with the assistance USCG District 5/Maritime Intelligence Fusion Center-Atlantic (MIFCLANT) GEOINT team. Any guidance you may be able to provide such that we can start providing data to the right folks while ASPECT is wheels up would be appreciated. Data sets include near real time XML of our flights with initial low resolution data images. ASPECT will also conduct scanning with our chemical sensors and taking Nadir and oblique (as identified by the pilots) photos. Please let me know if you have any questions.

Very Respectfully,

Tony Honnellio
Health Physicist
EPA ASPECT (Detail)
5 Post Office Square, Suite 100
Boston, MA 02109-3912
W: 617 918-1456
C: 617 947-4414
F: 617 918-0456

Message

From: Rick Turville [rick@spectralsystemsglobal.com]
Sent: 9/8/2021 3:26:26 AM
To: Taylor, Jillianne [Taylor.Jillianne@epa.gov]; jill.rene.taylor [jill.rene.taylor@gmail.com]
Subject: FW: draft ASPECT report for 7 September 2021
Attachments: ASPECT Summary - Hurricane Ida 7 September 2021.docx

----- Original message -----

From: Mark Thomas <mark@spectralsystemsglobal.com>
Date: 9/7/21 10:51 PM (GMT-05:00)
To: Rick Turville <rick@spectralsystemsglobal.com>
Subject: Fwd: draft ASPECT report for 7 September 2021

Sent from my iPhone

Begin forwarded message:

From: Mark Thomas <mark@spectralsystemsglobal.com>
Date: September 7, 2021 at 8:41:00 PM CDT
To: Turville Rick <Rick.Turville@kalmancoinc.com>, Kroutil Robert <robert.kroutil@kalmancoinc.com>, Dess Brian <brian.dess@kalmancoinc.com>, "Stapleton, Jeff" <jeff.stapleton@kalmancoinc.com>
Subject: draft ASPECT report for 7 September 2021

Rick,

Please find attached the draft ASPECT report for 7 Sept 2021. If you have any questions please let me know..

Mark J. Thomas, PhD
Spectral Systems Integration
2010 East Spruce Circle
Olathe, KS 66062

Phone: 256-453-9367
Email: mark@spectralsystemsglobal.com